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### Abstract

This paper offers a unified account of the English particle *just* that covers its exclusive, emphatic/intensifying, precisifying, unexplanatory, unelaborative, and counter-expectational uses. Drawing on an insight from another semantic domain, we claim that the chameleon-like behavior of *just* can be made sense of if we treat it as having a domain-widening function. The key proposal is as follows: the use of *just* indicates that the speaker is considering the widest set of alternative answers relevant at the context. The analysis relies on the notion of the optimal construal of an underspecified question, which makes use of a comparison between the inquisitiveness of questions, modeled as the **width** of a question. The optimal construal of a question further depends on its **answerability** – i.e. whether the speaker considers a true answer to be accessible at the context (satisfying Quality) and whether the speaker considers addressing it to be relevant to discourse goals (satisfying Relevance). The diverse contextual effects of *just* that are observed arise from the interaction between the way in which the set of alternative answers to the underspecified question is construed and what is taken to be the speaker’s motivation for signaling that the widest answerable construal of the question is being addressed via the preajcent.

**Key words:** Discourse Dynamics, Current Question, Exclusives, Miratives, Precisifiers, Intensifiers

## 1 Introduction

Most of the literature over the past five decades treats the English discourse particle *just* as one with its much-investigated cousin *only*, based on its interchangeability with the latter in examples like those in (1).

- (1) a. A: Who did Mary invite to the party?  
B: Mary invited *only/just* John and Mike.  
b. A: Is John graduating this Spring?  
B: No, John is *only/just* a sophomore.

Despite the conflation, it is well-known that this parallel treatment of the two expressions breaks down when one considers the full range of interpretive effects associated with *just*, making a unified analysis of *just*’s discourse contribution an unresolved puzzle. In this paper, we offer a possible solution to this puzzle. Following Coppock and Beaver (2014) we label the reading observed with *just/only* in (1a) as the *complement exclusion* reading and the one observed in (1b) as the *rank-order* reading. Intuitively, *just/only* sentences exhibiting a complement exclusion reading convey that *nothing other than* what is entailed by the preajcent is true while *just/only*

sentences exhibiting a rank-order reading convey that *nothing more than* the prejacent is true, where the prejacent is placed on a contextually determined scale that orders propositions by rank. Coppock and Beaver (2014) take *just* and *only* to be scale-sensitive expressions with a shared semantic core, differing primarily with respect to the variety of scales that they may associate with.<sup>1</sup> The standard lexical entry for both expressions characterizes them as being anaphoric to a salient current question (CQ or QUD), which is modeled as a set of propositional alternatives ordered along a scale of strength. Their semantics can be broken down into a positive component, which is presupposed (something *at least* as strong as the prejacent is true) and a negative at-issue component (*nothing stronger than* the prejacent is true).

Over the past decade or so, there have been analyses that seek to account for those well-observed uses of *just* that are not obviously reconcilable with its exclusive profile. These analyses have investigated the use of *just* to intensify the contribution of evaluative scalar expressions (2a); its use as a precisifier in comparison constructions (2b); its use to convey the lack of an explanation for the eventuality described by its prejacent (2c); and its use for conveying that something unexpectedly low on the contextual scale is sufficient cause for another eventuality (2d); As has also been well-observed, *just* cannot be felicitously replaced with *only* in any of these uses.

- (2) a. The food was *just/#only* amazing.  
*Emphatic just*; term due to Lee (1987) also see Beltrama (2018)
- b. Fafen, the daughter *just/#only* older than Siri, had done the family duty and become a monk.  
*Approximative just*; term due to Thomas and Deo (2020)
- c. I was sitting there and the lamp *just/#only* broke.  
*Unexplanatory just*; term due to Wiegand (2018)
- d. *Just/#Only* the thought of you sends shivers down my spine.  
*Minimal-sufficiency use*; term due to Grosz (2012)

Crucially, to the best of our knowledge, every analysis of exclusives known so far takes both *only* and *just* to quantify over a contextually given set of alternatives, which are grammatically constrained to be a subset of those generated by focus-marking in the clause (Rooth 1992) or (almost equivalently) correspond to a contextually salient partially ordered question, which is also indicated by focus (Beaver and Clark 2008) For both expressions, their at-issue contribution is that their prejacent is the strongest (or only) true proposition among the considered alternatives. In recent accounts, the alternatives over which *just* quantifies are analyzed as being of a more diverse type, allowed to be generated by contextually accessible semantic objects such as granularity levels (Thomas and Deo 2020; Beltrama 2021) or covert modifiers (Wiegand 2018) A similar approach is taken in Neeleman and Koot (2022)'s

<sup>1</sup> Coppock and Beaver (2014) consider expressions like *solely*, *merely*, *simply*, *purely*, *exclusively* etc. to form a unified semantic class with *only* and *just* – the class of exclusives. Although we agree that all these expressions give rise to exclusive-like effects in some of their uses, we believe that at least some of these expressions – e.g. *just* and *simply* must be analyzed differently from the classic exclusive *only*, if we are to make sense of their larger usage profile.

analysis of *only*, which analyzes temporal uses of *only* in terms of the type of alternatives it quantifies over. What remains constant across all analyses is that the locus of difference between *only* and *just* is understood to lie in the diversity of scales that the latter is able to associate with.

Drawing on an insight from another semantic domain, we offer a different approach to understanding the difference between the distributional and interpretational profiles of *only* and *just* in declarative clauses. We claim that the chameleon-like behavior of *just* can be made sense of if we treat it as having a special sort of domain-widening function (Kadmon and Landman 1993). Specifically, the use of *just* indicates the presence of a (possibly) wider set of alternative answers than might be presumed at a context. The difference between *only* and *just*, on this analysis, lies not (only) in the sorts of scales that the two expressions are compatible with, but (also) in how the domain of alternative answers is construed for each expression.

A speaker who uses *only* assumes that the CQ corresponds to the same set of alternative propositions for both interlocutors. On the other hand, a speaker who uses *just* in a declarative utterance is able to signal to the addressee that they are construing the question in a particular way: they have considered the widest relevant set of alternative propositions (in a sense to be made formally precise) appropriate at the context – which may or may not be identical to the set of alternatives the addressee might have in mind. The analysis develops the notion of the optimal construal of an underspecified question, making use of comparison between the inquisitiveness of questions, modeled as the **width** of a question. The optimal construal of an underspecified question further depends on its **answerability** – i.e. whether the speaker has sufficient evidence that a true answer is accessible for it (satisfying Quality) and whether the speaker considers addressing it to be relevant to discourse goals (satisfying Relevance). The diverse contextual effects of *just* that are observed arise from the interaction between the way in which the set of alternative answers to the underspecified question is construed and what is taken to be the speaker's motivation for signaling that the widest answerable construal of the question is being addressed via the prejacent.<sup>2</sup>

Here is the roadmap: In §2, we describe the distributional and interpretational profile of *just* in a range of its uses, contrasting it, as appropriate, with *only*. §3 lays out our analysis of *just* as signaling that the widest answerable construal of an underspecified question has been taken up for resolution. In §4, we demonstrate how this analysis accounts for many of the uses identified in §2, specifically those in which the prejacent of *just* is understood to respond to a constituent question.<sup>3</sup> A brief comparison of our analysis to existing analyses is offered in §5. In §6, we

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<sup>2</sup> We note here that this analysis does not solve every puzzle posed by *just*. To enumerate a few: how does one account for the fact that *just* may sometimes, but not always, convey that the strongest alternative answer expressed by the prejacent is weaker than what might be expected at the context? Why is the contribution of *just* targetable by clausal negation or denial moves only in some cases (see discussion in §4.9)? These remain unaddressed in detail here, but we think they can be investigated fruitfully using the approach we take, if not the precise implementation.

<sup>3</sup> Given space constraints, we are unable to consider here a subclass of precisifying uses of *just* where it is construed as responding to an underspecified polar question.

conclude, pointing to possible implications of our results for both English particles such as *simply* (which have been treated as belonging to the class of exclusives), and discourse particles crosslinguistically.

## 2 Just: a set of puzzles

### 2.1 Complement exclusion and rank order uses

Analyses of exclusive *only* agree that its at-issue contribution is that of excluding all focus-generated alternatives other than the prejacent (Rooth 1985; Rooth 1992). Scalar analyses, which make reference to a scalar ordering over the set of (focus-generated) alternatives, take *only* to exclude all alternatives stronger than the prejacent (Bonomi and Casalegno 1993; Beaver and Clark 2008). Beaver and Clark (2008, pp. 249–50) propose that in addition to their truth-conditional effects, exclusives like *only* function in discourse to challenge overly strong contextual expectations or to say that the (strongest) true alternative in the current question is weaker than what might be an expected answer on a salient contextually given scale. The scale may be an entailment scale (where stronger answers entail weaker answers) or a rank-order scale (where an element ranked higher than another element of the scale does not entail the lower-ranked element). Implicit to these analyses is an assumption that *only* and *just* pattern identically in the relevant uses for the most part, with *only* sometimes showing resistance with rank-order readings and *just* showing a preference for rank-order readings. The examples below illustrate the “expectation-lowering” effect of exclusives seen in both complement-exclusion (3a) and rank-order readings (3b).

- (3) a. A: Where did Mary go for her vacation this year?  
 B: She *just/only* went to Spain and Portugal.  
 ↪ Mary did not go to any country other than Spain and Portugal.  
 ↪ Mary was expected to go to more countries on her vacation.
- b. A: What is Mary’s job at the hospital?  
 B: She is *only/just* an intern.  
 ↪ Mary is nothing more senior than an intern.  
 ↪ Mary’s seniority in the medical profession was expected to be at a higher level than an intern.

The mirativity associated with *just* and *only* obtains because their use often correlates with the presence of stronger expectations in the context as explicitly seen in web-attested examples like (4a-4b) from Beaver and Clark 2008, p. 252.

- (4) a. I really expected a suite but *just/only* got a single room with 2 beds.  
 b. London police expected a turnout of 100000 but *just/only* 15000 showed up.  
 What happened?

We leave the derivation of this effect as an open question for now, noting that at least in the case of *just*, expectation-lowering cannot be encoded as being its primary discourse-function, given how it is interpreted in the data in §2.2.

## 2.2 Emphatic uses

*Just* can have a strengthening effect where its presence in a sentence conveys that the extent to which an entity has some attribute exceeds contextual expectations. This use has been labeled as its “emphatic” (Beltrama 2018; Beltrama 2021) or “uncontrastive” (Warstadt 2020) use. Some examples are in (5). What the predicates in (5) have in common is that they are extreme adjectives (see Paradis 2001; Morzycki 2012)

- (5) a. A: How good was the food?  
 B: The food was *just* amazing!  
 Paraphrase: The food was absolutely amazing.
- b. A: How big is the Empire State Building?  
 B: The Empire State Building is *just* gigantic/huge/enormous!  
 Paraphrase: The Empire State Building is absolutely gigantic/huge/enormous.

According to Morzycki (2012) extreme adjectives are based on open scales and access a scale interval that is “off the scale” in the sense that it lies outside of the set of degrees expected to be relevant in the discourse context. Moreover, as noted by Beltrama (2018) Beltrama (2021) and Wiegand (2018) *just* also has an emphatic effect when it occurs with certain other kinds of expressions besides adjectives. The examples in (6) are naturally-occurring examples found in the Corpus of Contemporary American English (COCA; Davies (2008)). All COCA examples in the paper are indicated with a superscript <sup>C</sup>.

- (6) a. <sup>C</sup>The funeral was full of life and passion and emotional—and *just* every emotion you can imagine.
- b. <sup>C</sup>My husband had a pink bathroom with burgundy trim in his apartment in New York. Pink bathrooms are *just* the BEST!

## 2.3 Precisification

Thomas and Deo (2020) analyze the use of *just* in equative and comparative constructions, which they call the “approximative” use, extending a term from Sauerland and Stateva (2007) They argue that in equative constructions, focused *just* conveys that its prejacent is true at all levels of precision, even the highest permissible one. In comparative constructions, on the other hand, *just* conveys that its prejacent is true only at the highest level of precision—not at lower levels. Broadening beyond the original data analyzed in Thomas and Deo (2020) we identify two classes of use in which *just* behaves as it does in equative or comparative constructions; we call these *equality-denoting* and *proximity-denoting* uses, respectively. These are subsumed under the heading of *precisifying uses* since both entail the truth of the prejacent at the highest permissible level of precision. Data illustrating these uses is in §2.3.1 and §2.3.2. §2.3.3 contains spatio-temporal uses of *just* that are also precisifying uses.

### 2.3.1 Equality-denoting uses

Some corpus examples of the use of *just* in equative constructions from Thomas and Deo (2020) are shown in (7), where *just* conveys that the prejacent is true at the highest permissible level of precision.<sup>4</sup>

- (7) a. <sup>C</sup>More and more evidence shows that relatively simple changes in lifestyle can have a big impact on your blood pressure—in many cases, *just* as big as popping a pill.
- b. <sup>C</sup>Many gardeners are finding the new selections of miniature amaryllis more to their liking. ... don't be misled by the word "miniature." The blossoms are smaller and have longer, more trumpet-shaped blooms than the flat, flared faces of hybrid bulbs, but the stalks are apt to be *just* as tall.

*Just* has a similar precisifying effect when it combines with other expressions besides equative constructions, as seen in (8). In each of these cases, *just* combines with an expression that can be taken to allow loose talk (see Lasersohn 1999) and it signals that the prejacent is true on its strictest interpretation. The precisifier *exactly* could be used instead of *just* for the same effect.

- (8) a. They rely on gallonage, and the "shell full" gallonage, which is stenciled on the ends of the car, is the amount when the horizontal cylinder of the tank is *just* full, easily observed from the manway during filling. (<https://www.railpage.com.au/news/s/waybills-part-78-car-weights>)
- b. <sup>C</sup>The tea was *just* right, hot and sweetened with a teaspoon tip of honey.

### 2.3.2 Proximity-denoting uses

When *just* occurs in comparative constructions, it can be paraphrased by *slightly* or *barely*, as seen in (9). Thomas and Deo (2020) argue that the effect of *just* in these sentences also has to do with precision: It conveys that the prejacent is true only at the highest permissible level of precision. In (9a), for instance, Fafen is understood to be older than Siri by a small amount that is relevant only at a high level of precision.

- (9) a. <sup>C</sup>Fafen, the daughter *just* older than Siri, had done the family duty and become a monk.
- b. <sup>C</sup>The camera was a plastic but weighty box *just* bigger than a card deck.
- c. <sup>C</sup>At 11, Samantha is *just* over 5 feet tall and has wavy black hair.

*Just* has the same effect with *enough* and certain adjectives, as shown in (10). In such sentences, *just* can again be roughly paraphrased by *barely* or *slightly*.

- (10) a. <sup>C</sup>The city was *just* visible in the distance.
- b. <sup>C</sup>The path is *just* wide enough for one person.

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<sup>4</sup> We are unable to present our analysis of the interaction of equative constructions with *just* in this paper because of space constraints. We therefore do not discuss the empirical facts of equatives in further detail here.

### 2.3.3 Spatio-temporal uses

The temporal uses of *just*, which to our knowledge have not been analyzed in the literature, are also instances of equality-denoting and proximity-denoting uses. When *just* combines with indexicals like *now* and *then*, it effects precisification and can once again be paraphrased with *exactly*. Examples are shown in (11a) and (11b). When it modifies a VP, it has an effect more like the proximity-denoting use: In (11c), for example, it conveys that the time that has elapsed since the speaker's sister arrived is small enough that it is only relevant at a high level of precision.

- (11) a. <sup>C</sup>We're at a very interesting juncture *just* now.  
 b. <sup>C</sup>*Just* then there was a knock at the door.  
 c. <sup>C</sup>My sister *just* got here.

The same two effects also arise when *just* combines with expressions that denote locations in space. In (12a), *just* has a reading paraphrasable with *exactly*, and in (12b) it has a reading paraphrasable with *slightly*.

- (12) a. <sup>C</sup>He could see the woman crouched above the sand *just* at the waterline.  
 b. <sup>C</sup>*Just* past the farmhouse front door is a small catering kitchen.

### 2.4 Minimal sufficiency uses

Coppock and Beaver (2014) note that a class of readings labeled “minimal sufficiency readings” by Grosz (2012) are available to *just* (but not *only*). In these uses, *just* conveys that even a proposition as weak as the prejacent is true, giving rise to a non-exclusivity inference. The prejacent expresses that some proposition *p* (usually expressed as an NP) is causally sufficient for another proposition *q* to hold. Crucially, it does NOT rule out the possibility that stronger alternatives *p'* are also sufficient for *q* to obtain (Coppock and Lindahl 2014; Panizza and Sudo 2020)

- (13) a. *Just* one cat will make Patrick happy.  
 ↪ Patrick having one cat (*p*) is sufficient for him to be happy (*q*).  
 ↯ Patrick having more than one cat (*p*) is NOT sufficient for him to be happy (*q*).  
 b. *Just* a 3.5 GPA is sufficient for Jason to stay in the program.  
 ↪ Jason obtaining a 3.5 GPA (*p*) is causally sufficient for him to stay in the program (*q*).  
 ↯ Jason obtaining any higher GPA than 3.5 (*p*) is NOT causally sufficient for him to stay in the program (*q*).

The primary challenge with minimal sufficiency readings is to explain why we do not get the upper-bounding inference with *just*, unlike with complement-exclusion, for instance.<sup>5</sup> Intuitively, this use of *just* is close to that of the scalar additive *even*. The speaker uses *just* to indicate that *p* being a sufficient cause for *q* is unexpected or

<sup>5</sup> As Coppock and Lindahl (2014) also suggest, all structures in which *just* could potentially give rise to the minimal sufficiency reading necessarily involve a (causal) sufficiency component and presuppose a background causal structure.

surprising because *p* would ordinarily be considered too weak to have the causal effect it does in fact have. This observation led Panizza and Sudo (2020) to posit a covert *even* in the analysis of minimal sufficiency readings in *just* containing sentences.

## 2.5 Unexplanatory uses

Wiegand (2018) identifies a use of *just*, which she labels *unexplanatory just*, illustrated in (14). Here, *just* conveys that the prejacent proposition has no identifiable cause or explanation. In her words, “*unexplanatory just* is used to distance the speaker from explanation, cause or reason for the eventuality described in the proposition it modifies” (Wiegand 2018, p. 421). *just* is not interchangeable with *only* here.

(14) A: Why is the lamp broken?

B: I was sitting there and the lamp *just* broke! (Wiegand 2018, p. 419)

↪ The speaker can identify no explanation for the lamp’s breaking.

Warstadt (2020) discussing this use, observes that attempts to follow up *unexplanatory just* sentences with an explanation for the prejacent content result in oddness. For example, in a context in which the speaker is explaining why they think their house may be haunted, (15a) is felicitous, but not (15b), which contains a follow-up explanation. Assume as CQ: *Why is the house haunted?*

(15) a. The lights *just* turn off and on.

b. The lights *just* turn off and on. #The wire is frayed.

A slightly different flavor of *just* is to be found in its use to offer an (unexpectedly) weak explanation for some state-of-affairs (call this *weak-explanation just*). In these uses, not noted before to the best of our knowledge, *just* conveys that there is no stronger reason than the prejacent for the situation in question to hold. Here, *just* straightforwardly excludes alternative answers to a why-question that are stronger than the prejacent. Notice that despite the upper-bounding semantics of *just* in these uses, one cannot felicitously replace it with *only* in the examples in (16).

(16) a. A: Why did you make mango-mousse cake?

B: I *just* had extra mangoes.

↪ There is no stronger explanation for making mango-mousse cake.

b. A: How did Mary get into the bar?

B: She *just* lied about her age.

↪ There is no stronger (or more ethical) explanation for Mary’s entry.

While both *unexplanatory* and *weak explanation* uses of *just* challenge expectations about the possible explanation for some proposition, they do so differently. In the former case, *just* combines with the prejacent *p* and denies the existence of a knowable explanation for *p*. In the latter case, *just* combines with the prejacent *p* and conveys that *p* offers a weaker-than-expected explanation for some other *q* referenced in the contextually salient question.

## 2.6 Unelaboratory uses

Closely related to *unexplanatory just* is another use of *just* that Warstadt (2020), building on Orenstein (2015)’s description of the Hebrew exclusive *stam*, first



describes and labels as *unelaboratory just*. In this use, *just* appears to close off the possibility of further elaborations of the prejacent, which would provide more specific information than the prejacent does. Just like with *unexplanatory* and *weak explanation* uses, *unelaboratory just* cannot be replaced by *only*. We use Warstadt (2020, p. 376)'s examples in (17), presenting them in a question-answer format so that what is assumed to be the contextually salient question is transparent.

- (17) a. A: What is a proton?  
 B: A proton is *just* a hydrogen atom without an electron.  
 ~> The speaker thinks no more elaboration is needed to define a proton.
- b. A: Why are you mad?  
 B: I am *just* mad.<sup>6</sup>  
 ~> The speaker is not mad at anyone in particular.
- c. A: What kind of dog is Fido?  
 B: Fido is *just* a dog.  
 ~> Fido is an ordinary dog, or a mutt (and the speaker sees no need for further information)

Intuitively, in the *unelaboratory* use, the speaker fails to provide a sufficiently elaborate answer to the current question given the context. This lack of elaboration may involve an (over)-simplified answer, as in (17a) or a non-answer, as in (17b-17c). Note that this is not the characterization that Warstadt offers (see §5.3). Assuming that the speaker is being cooperative, such an answer may convey that the speaker takes further elaboration to be unnecessary (a violation of Gricean Quantity) or irrelevant (a violation of Gricean Relation).

## 2.7 Counterexpectational uses

Wiegand (2018, pp. 423–424), in discussing uses of *just* beyond the unexplanatory ones, notices contexts in which *just* conveys that the prejacent describes a situation that does not accord with a set of normative or stereotypical expectations. Her examples:

- (18) a. A: What happened to your relationship?  
 B: He started seeing an ex-girlfriend and *just* stopped texting me.  
 ~> The subject referent failed to adhere to norms for relationship closure in the context.
- b. A: What happened at the church?  
 B: The priest gave Charlotte her communion wafer and she *just* ate it!  
 ~> Charlotte behaved in a way inconsistent with Catholic norms.

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<sup>6</sup> It is unclear why Warstadt does not subsume this example under cases of *unexplanatory just* since, intuitively, *just* seems to be ruling out a causal explanation for the prejacent. But this could possibly have to do with the fact that when a speaker describes their own emotional state as having no identifiable cause, the addressee might infer that the speaker does not wish to elaborate on it. Regardless, in §4.4 and §4.5, we will offer a uniform treatment of the way in which both unexplanatory and unelaboratory inferences arise.

What characterizes the uses in (18) is an element of unexpectedness or surprise due to deviation from cultural, legal, or behavioral norms. This sort of mirative effect is, however, distinct from the one often associated with exclusives – the inference that the strongest answer is *weaker* than expected. There is no natural way in which the use of *just* to convey deviance from normative patterns can be taken to be a strategy for marking the weakness of one’s contribution. If anything, it marks the informative strength of the contrary-to-expectation contribution. It goes without saying that *only* fails to be felicitous in any of the examples in (18).

## 2.8 Summary

The data above show that a single lexical expression *just* can be used (at least) to signal (a) the exclusion of stronger alternatives, (b) extreme values for some scalar attribute, (c) precise interpretations of vague predicates along a salient dimension, (d) the absence of suitable (or suitably strong) explanations for facts or phenomena, (e) the irrelevance/unnecessity of a more elaborate answer to a question at a given point in discourse, and (f) the contrary-to-expectation status of some proposition. Three observations stand out:

- (19) a. **No commonly shared CQ:** There is no evidence that *just* should be treated as an exclusive that rules out stronger answers from a *commonly shared current question*. Its prejacent, in several uses (particularly those in §2.5 and §2.6), cannot even be legitimately taken to be a member of the explicitly raised question that it is a response to on any standard construal.
- b. **Non-standard set of alternatives:** There is no evidence that the alternative-sensitivity of *just* is reducible to focus-sensitivity understood in the Roothian sense. *Just* may, but does not have to, consider alternatives generated by replacing the focus-marked expression located in its prejacent with suitable lexical alternatives. This is particularly clear from the uses of *just* in §2.3, where the alternative propositions at play have to do with standards of precision for interpretation. But it is clear also from the uses described in §2.5, §2.6, and §2.7, where the relevant alternatives do not bear a straightforward “fill-a-hole-in-the-propositional-expression” relation to the prejacent.<sup>7</sup>
- c. **Mirativity:** *just*, across all its uses, often gives rise to the inference that the speaker considers the prejacent to deviate from the addressee’s/contextual expectations in some way.
- i. In the complement-exclusion and rank-order readings discussed in §2.1, the prejacent is weaker than expected.
  - ii. With emphatic *just*, discussed in §2.2, the subject referent is understood to exceed expectations wrt some evaluative scalar attribute.
  - iii. In §2.3, we see uses where the speaker accesses higher standards of precision than might be expected.

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<sup>7</sup> This observation has been made before at least in Wiegand (2018) Thomas and Deo (2020) and Beltrama (2021) with corresponding attempts to develop a more flexible way of constructing the relevant interpretively distinct, non-overt alternatives.

- iv. The minimal sufficiency readings in §2.4 involve descriptions of unexpectedly weak causes that guarantee particular effects.
- v. With the *unexplanatory* or *weak explanation* uses in §2.5, what is surprising is either the lack of or the weakness of the explanation offered by the prejacent.
- vi. In *unelaboratory* uses in §2.6, the speaker thwarts expectations about a sufficiently fine-grained resolution of the current question.
- vii. In §2.7, the speaker conveys that the prejacent deviates from a course of events determined by cultural, legal, or behavioral norms.

Taken together, these observations suggest that a speaker using *just* conveys that the question addressed by its prejacent is to be construed as a set of alternatives that might not be identical to the set of alternatives assumed by the addressee. This is consistent with the proposal we outlined in §1: *just* signals that the widest answerable construal of an underspecified question has been taken up for resolution. In many cases, such a construal may contain a wider set of alternative answers than might have been presumed at the context. Of course, what it means for a question to have the widest presumable construal at a context depends on assumptions about the relevant contextual components and how they participate in structuring the question.

### 3 Analysis

#### 3.1 The structure of the context

As is standard, we take each context  $c$  to be associated with the common ground, a body of information  $\text{INFO}_c$  characterizing the joint, mutually agreed upon public commitments of all interlocutors at  $c$ .

##### 3.1.1 The Current Question

Beaver and Clark (2008)'s framework for analyzing exclusives additionally assumes that each context  $c$  provides a current question under discussion CQ and a strength ranking over alternative answers  $\geq_c$  (a binary relation over the answers).<sup>8</sup> Expressions like *only* and *just*, which track and regulate the flow of discourse, are understood to be anaphoric to this contextually given, possibly implicit current question.

In the literature on questions, it has been convincingly demonstrated that the issue/question that is expressed by an explicitly uttered interrogative cannot be taken to be invariant. That is, the meanings of questions are themselves underspecified and depend for specification on aspects of the conversational context (Van Rooy 2003; Ginzburg 1995) On this approach, whether some piece of information can be construed as answering or resolving a question varies across contexts and depends on both interlocutor assumptions and their conversational goals.<sup>9</sup>

<sup>8</sup> The prosodic structure in a declarative is both constrained by and constrains the CQ, by principles that require focus alternatives to be evoked by some part of that contribution (Beaver and Clark 2008, p. 37).

<sup>9</sup> For instance, the set of alternative answers corresponding to an explicit question like *Who did Mary invite to her birthday party?* might depend in different contexts on the domain

Given this flexibility in the construal of contextually salient questions, assuming that the context provides one fully specified privileged question that is *the* current question and that this question (a fixed set of alternative answers) is both identically interpreted by all interlocutors and unanimously taken up for resolution, might offer a too perfectly aligned and certain picture of the context. We suggest instead that it is necessary to make space for the possibility that questions are underspecified and that there may be uncertainty between interlocutors with respect to the precise set of propositions that is the denotation of an interrogative utterance at a given context.<sup>10</sup> In the spirit of Van Rooy (2003) and Ginzburg (1995) we propose that both questions raised by interrogative sentences and questions that are implicit but salient in the context might be underspecified and can be made determinate by interlocutors based on their view of the evolving discourse.<sup>11</sup> To model this, we depart from Beaver and Clark (2008) and take the context to provide what we call an **Underspecified Question**  $UQ_c$ , which we take to be the set of all possible construals of a given interrogative sentence at a context.<sup>12</sup> Note that not every question will allow for multiple construals. For instance, polar interrogatives like *Is John coming to the party?* will typically not give rise to any uncertainty with respect to the precise set of propositions in their denotation. In such cases, the  $UQ_c$  will be a singleton set.

The  $UQ_c$  amounts to a set of sets of propositions determined by a discourse move (possibly using an interrogative) that is actually made by an interlocutor at a context. The **Current Question**  $CQ$  is that element of the  $UQ_c$  that the speaker takes their utterance to address at that context. Thus, given a salient (potentially) underspecified question  $UQ_c$  in the context, it is the answerer's job to determine which construal of that question  $CQ$  is most relevant for uptake at a discourse context.

Following models developed in Roberts (1996 [2012]), Beaver and Clark (2008), and elsewhere, we will assume that the felicitous flow of discourse is regulated by

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of quantification and assumptions about potential invitees. For a question like *Where is Mary right now?*, the set of appropriate answers would depend in different contexts on how fine-grained the answer is required to be given the conversational goals. Keeping Mary's location constant, one can see how this question might be appropriately resolved in different contexts by responses differing in their fine-grainedness such as *in the US*, *in Austin*, *at the department*, or *in the conference room*.

<sup>10</sup> This underspecification is particularly salient in *where*-questions, *when*-questions, and *how-ADJ-is-x*-questions, where the possible answers are located in a contiguous answer-space that can be carved into subparts of ever-increasing fine-grainedness. *Who/what-questions*, *why-questions*, and *how-questions* are also underspecified because they are compatible with mention-some construals, which may be sufficient in some contexts as well as mention-all, exhaustive construals, which may be necessary in some contexts (Hintikka 1975). *Why*- and *how*- questions, in addition, provide no context-independent standard for what might count as a sufficient/necessary cause for some eventuality or what might be sufficient/necessary to characterize the conversationally relevant aspects of an eventuality.

<sup>11</sup> With explicitly raised questions, the issue has to do with the contextually relevant interpretation of a compositionally derived string whose conventional meaning remains underspecified. But with implicit questions, the issue is one of contextual uncertainty, where the answerer must make a decision about which interpretation of the implicit question is most appropriate at that discourse context.

<sup>12</sup> In §3.2, we will introduce additionally a **width** ordering on these construals.

the contextually given current question. In particular, we assume the **Discourse Principle** of Beaver and Clark (2008) which requires that utterances should be maximally relevant to the CQ. For our purposes, this requires that a declarative utterance at a context either be among the answers to the CQ or entail an answer to the CQ. We also assume Beaver and Clark (2008)'s **Focus Principle**, also adapted from Roberts (1996 [2012]). Following Rooth (1985) prosodic focus on some element of a sentence (henceforth indicated by  $F$ ) is taken to evoke a set of alternative propositions that are generated by replacing the focused element with other expressions of the same type. According to the Focus Principle, this set of alternatives must contain all of the possible answers to the CQ (the ‘‘Rooth-Hamblin alternatives’’ (see Hamblin 1973; Rooth 1985; Rooth 1992)).<sup>13</sup>

- (21) **Focus Principle:** Some part of a declarative utterance should evoke a set of alternatives containing all the Rooth-Hamblin alternatives of the CQ.

### 3.1.2 Granularity functions<sup>14</sup>

Finally, we must take into consideration the fact that sentences (including interrogatives) containing certain kinds of vague expressions are construable at different levels of precision and that this construal is context-dependent. At least since Krifka (2007), many researchers have conceptualized levels of precision as related to scale granularities. This notion has been deployed to account for the behavior of (non-)round numerals (Krifka 2007) and the presence of approximators (Sauerland and Stateva 2011) or degree modifiers (Sassoon and Zevakhina 2012). On this approach, a scale is divided into grains of a fixed width where degrees within each grain are indistinguishable from one another. A finer scale granularity corresponds to a smaller grain size and a higher level of precision, while a coarser scale granularity corresponds to a larger grain size and lower level of precision. Grain size is taken to represent the smallest measurement that is relevant in the discourse context.<sup>15</sup>

We follow Sauerland and Stateva (2007) in assuming that any sentence construable at different levels of precision is interpreted with respect to a *granularity function* that specifies how precisely the sentence is to be interpreted. Each context  $c$  provides a set

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<sup>13</sup> For example,  $[Mary]_F$  *laughed* is an acceptable answer to the question *Who laughed?* because it evokes the set of focus alternatives in (20a), which is a superset of (and in fact identical to) the set of possible answers to the question. On the other hand,  $Mary$   $[laughed]_F$  is not an acceptable answer to that question because its set of focus alternatives is generated by replacing *laughed* with other predicates, which yields a set, shown in (20b) that does not contain the question's alternatives.

(20) a.  $\{Mary\ laughed, John\ laughed, Mike\ laughed, \dots\}$   
 b.  $\{Mary\ laughed, Mary\ cried, Mary\ smiled, \dots\}$

<sup>14</sup> Much of the prose in this section also appears as part of another paper, Thomas and Deo (forthcoming).

<sup>15</sup> For example, in a context where height differences of less than one foot are irrelevant, all measurements are rounded to the nearest foot, so *one foot* refers to heights between 0.5 feet and 1.5 feet, *two feet* refers to heights between 1.5 and 2.5 feet, etc. This corresponds to a granular scale with a grain size of one foot.

of granularity functions  $gran_c$ , and for any given utterance, an appropriate member of  $gran_c$  is chosen corresponding to the level of precision intended by an interlocutor at that context. A granularity function is taken to be a function from points to sets of points that defines a partition on its domain in the manner specified in (22). We refer to the cells of a partition defined by a granularity function as *grains*.

- (22) A granularity function  $\gamma$  maps each point  $p$  in a set  $S$  of points (on a scale, in space, or in time) to a cell  $I$  of a partition of  $S$  such that  $p \in I$ .

Granularity functions can be ordered with respect to their *fineness*. Intuitively, a granularity function  $\gamma_1$  is finer than a granularity function  $\gamma_2$  if the grains of  $\gamma_1$  are smaller than those of  $\gamma_2$ . To keep things simple, we only consider granularity functions whose domain is a one-dimensional scale or a set of time points and assume that all grains of a given granularity function are the same size.<sup>16</sup>

- (23) Given two granularity functions  $\gamma_1$  and  $\gamma_2$  with grain widths  $\epsilon_1$  and  $\epsilon_2$ , respectively,  $\gamma_1$  is finer than  $\gamma_2$  if and only if  $\epsilon_1 < \epsilon_2$ .

Let  $d$  be the semantic type of points, which includes scale degrees, locations, and times. Any expression  $\delta$  of type  $d$  has a strict interpretation  $\llbracket \delta \rrbracket^0$ . For example, the strict interpretation of *six feet* is the exact point of six feet on a scale of distance, the strict interpretation of *3:00 o'clock* is the exact moment of 3:00 o'clock, and the strict interpretation of *here* is the exact point that a speaker is pointing to. In context, however, point-denoting expressions do not receive their strict interpretation, but rather a “looser” interpretation that depends on a granularity function. In particular, the interpretation with respect to a granularity function  $\gamma$  of any expression  $\delta$ , whose strict denotation is a point  $x$ , is that cell of the partition defined by  $\gamma$  that contains  $x$ .  $\delta$  is interpreted by applying  $\gamma$  to its strict denotation, as given in (24).

Since the strict interpretation  $\llbracket \text{six feet} \rrbracket^0$  lies in the cell  $[5'11.5'', 6'0.5'']$ , we have  $\llbracket \text{six feet} \rrbracket_{\gamma_{\text{in}}} = \gamma_{\text{in}}(\llbracket \text{six feet} \rrbracket^0) = [5'11.5'', 6'0.5'']$ . In other words, *six feet* denotes the interval from  $5'11.5''$  to  $6'0.5''$ .

- (24) Given a granularity function  $\gamma$  and an expression  $\delta$  such that  $\llbracket \delta \rrbracket^0 = x$  for some  $x \in D_d$ , the interpretation of  $\delta$  with respect to  $\gamma$  is notated  $\llbracket \delta \rrbracket_{\gamma}$  and is defined to be  $\gamma(x)$ .

A gradable adjective  $G$  denotes a function that takes a degree  $d$  and an individual  $x$  and returns true if the property associated with  $G$  holds of  $x$  to degree  $d$  (see Kennedy and McNally (2005) and many others). Since we take degree expressions to denote intervals rather than individual degrees, we assume that a gradable adjective denotes a function that takes an interval  $I$  and an individual  $x$  and returns true iff the degree to which the relevant property holds of  $x$  lies in  $I$ . This is given in (25), and the derivation of the meaning of *Mary is six feet tall* relative to  $\gamma_{\text{in}}$  is shown in (26).

<sup>16</sup> That is, we will not consider granularity functions over two- or three-dimensional space or that do not have a fixed grain size, but we leave open the possibility that such granularity functions exist. For example, a granularity function could partition the area of the United States into states or partition a city into neighborhoods, which do not all have the same area.

- (25) For any gradable adjective  $G$  encoding a property associated with a measure function  $m_G$ ,  $\llbracket G \rrbracket = \lambda I_{\langle d, t \rangle} \lambda x_e \lambda w. m_G(x)(w) \in I$ .
- (26)  $\llbracket \text{Mary is six feet tall.} \rrbracket_{\gamma_{1\text{in}}}$   
 $= \llbracket \text{tall} \rrbracket (\llbracket \text{six feet} \rrbracket_{\gamma_{1\text{in}}})(\mathbf{m})$   
 $= \lambda w. \mathbf{tall}(\mathbf{m})(w) \in \llbracket \text{six feet} \rrbracket_{\gamma_{1\text{in}}}$   
 $= \lambda w. \mathbf{tall}(\mathbf{m})(w) \in [5'11.5'', 6'0.5'']$

The lexical content of a point-denoting expression often places constraints on which granularity functions can be used to interpret it. As pointed out by Krifka (2007), round numerals typically receive less precise interpretations. Thus it is natural to interpret *20 feet* as the interval from 15 feet to 25 feet (with a grain size of 10 feet), but *6 feet* would never be interpreted with that grain size, which would yield the interval from 1 foot to 11 feet. *6 feet* is instead interpreted with respect to a finer granularity function, such as one with a grain size of one foot or one inch. The exact choice of a granularity function will depend on the level of precision required by the context. We will assume that measure phrases always denote intervals that they lie at the center of.

We assume the meanings for comparative and equative morphology shown in (27), which are modifications of those given by Kennedy and McNally (2005). For an individual  $x$ , gradable adjective  $G$ , and degree  $d_c$ , we follow Thomas and Deo (2020) in taking the comparative statement *x is G-er than d<sub>c</sub>* to be true with respect to a granularity function  $\gamma$  with grain width  $\varepsilon$  iff the degree to which  $G$  holds of  $x$  exceeds the supremum of  $\gamma(d_c)$ . The equative statement *x is as G as d<sub>c</sub>* is true with respect to a granularity function  $\gamma$  with grain width  $\varepsilon$  iff the degree to which  $G$  holds of  $x$  either lies within  $\gamma(d_c)$  (in which case it is indistinguishable from  $d_c$ ) or exceeds the supremum of  $\gamma(d_c)$  (in which case the comparative statement is also true). For example, *Mary is as tall as John* is true with respect to  $\gamma_{1\text{in}}$  iff Mary's exact height is equal to at least (John's exact height) – (1/2 inch), while *Mary is taller than John* is true with respect to  $\gamma_{1\text{in}}$  iff Mary's exact height is more than 1/2 inch greater than John's height (see Thomas and Deo (2020)). We depart from Thomas and Deo (2020) by taking gradable adjectives to take intervals rather than degrees as inputs; accordingly (27) involves existential quantification over intervals  $I$  rather than over degrees.

- (27) a.  $\llbracket \text{-er/more than } d_c \rrbracket_{\gamma} = \lambda G \lambda x \lambda w. \exists d [\inf(\gamma(d)) > \sup(\gamma(d_c)) \wedge G(\gamma(d))(x)(w)]$
- b.  $\llbracket \text{as ... as } d_c \rrbracket_{\gamma} = \lambda G \lambda x \lambda w. \exists d [\inf(\gamma(d)) \geq \inf(\gamma(d_c)) \wedge G(\gamma(d))(x)(w)]$

### 3.1.3 Granularity functions in the interpretation of questions

Underspecified questions whose construals vary according to an argument of type  $d$  depend on a granularity function for their interpretation in context. Any element of such an underspecified question denotes some partition on the common ground that is determined by the partition that a relevant granularity function defines on the relevant set of points. The assumed interpretation of questions that inquire about

such values is given in (28), with a degree question in (28a), a location question in (28b), and a time question in (28c).<sup>17</sup>

- (28) a.  $\llbracket \text{How } G \text{ is } x? \rrbracket_\gamma = \{\lambda w. \llbracket G \rrbracket(I)(\llbracket x \rrbracket)(w) : I \in \text{range}(\gamma)\}$   
 b.  $\llbracket \text{Where is } x? \rrbracket_\gamma = \{\lambda w. \mathbf{at}(I)(\llbracket x \rrbracket)(w) : I \in \text{range}(\gamma)\}$   
 c.  $\llbracket \text{When did } P \text{ obtain?} \rrbracket_\gamma = \{\lambda w. \mathbf{inst}(I)(\llbracket P \rrbracket)(w) : I \in \text{range}(\gamma)\}$

To illustrate, (29) gives the interpretation of the question *How tall is Mary?* with respect to two distinct granularity functions. The function in (29a) rounds every possible height to the nearest inch, and thus the alternatives contained in the denotation of the question correspond to propositions containing measure phrases that denote one-inch intervals. The function in (29b) rounds every possible height to the nearest foot, producing alternatives that correspond to one-foot intervals.

- (29) a.  $\llbracket \text{How tall is Mary?} \rrbracket_{\gamma_{1\text{in}}}$   
 $= \{\mathbf{tall}(I)(\mathbf{m}) : I \in \text{range}(\gamma_{1\text{in}})\}$   
 $= \{\mathbf{tall}(I)(\mathbf{m}) : I \in \{[0'', 0.5''], [0.5'', 1.5''], [1.5'', 2.5''], \dots\}\}$   
 $= \{\llbracket \text{Mary is 0 inches tall} \rrbracket_{\gamma_{1\text{in}}}, \llbracket \text{Mary is 1 inch tall} \rrbracket_{\gamma_{1\text{in}}}, \llbracket \text{Mary is 2 inches tall} \rrbracket_{\gamma_{1\text{in}}}, \dots\}$   
 b.  $\llbracket \text{How tall is Mary?} \rrbracket_{\gamma_{1\text{ft}}}$   
 $= \{\mathbf{tall}(I)(\mathbf{m}) : I \in \text{range}(\gamma_{1\text{ft}})\}$   
 $= \{\mathbf{tall}(I)(\mathbf{m}) : I \in \{[0', 0.5'], [0.5', 1.5'], [1.5', 2.5'], \dots\}\}$   
 $= \{\llbracket \text{Mary is 0 feet tall} \rrbracket_{\gamma_{1\text{ft}}}, \llbracket \text{Mary is 1 foot tall} \rrbracket_{\gamma_{1\text{ft}}}, \llbracket \text{Mary is 2 feet tall} \rrbracket_{\gamma_{1\text{ft}}}, \dots\}$

### 3.1.4 Looking ahead

At any context  $c$ , with common ground  $\text{INFO}_c$ , a (potentially) underspecified question  $\text{UQ}_c$ , and a set of granularity functions  $\text{gran}_c$ , it is natural to expect that interlocutors make assumptions about the optimal construal of  $\text{UQ}_c$  given what is already known ( $\text{INFO}_c$ ), what is contextually expected, and the level of fine-grainedness required for satisfying conversational goals in  $c$ . There may be contexts in which a speaker wants to explicitly signal that their construal of  $\text{UQ}_c$  distinguishes between alternatives as finely as is possible/necessary to best satisfy the conversational goals in  $c$ . That is, CQ (which is the question that the prejacent is understood to address) is taken to be the most optimal construal of  $\text{UQ}_c$ , ensuring that the “widest” domain of alternative answers is being considered in satisfying conversational goals. This in turn ensures that a speaker (if she is respecting Quantity, Quality, and Relevance) is offering the most informative answer possible/necessary at that context. On our view, *just* is a dedicated strategy that signals that the most optimal construal of an underspecified question that is possible/necessary in the context has been taken up for resolution.<sup>18</sup>

<sup>17</sup> In (28b),  $\mathbf{at}$  is a function that takes an individual  $x$ , a region in space  $I$ , and a world  $w$  and returns true iff  $x$  is located in  $I$  in  $w$ . In (28c),  $\mathbf{inst}$  is a function that takes a temporal interval  $I$ , a predicate  $P$ , and world  $w$  and returns true iff  $P$  is instantiated in  $I$  in  $w$ .

<sup>18</sup> As a reviewer notes, it is puzzling that we make reference here to the most optimal construal of a question possible or necessary. This has to do with the way in which answerability is defined in (34). We take it that a question  $Q$  is answerable iff the speaker considers it possible to access a true answer to it ( $Q$  satisfies Quality) AND the speaker considers it necessary to answer it given discourse goals at  $c$  ( $Q$  satisfies Relevance). Thus,



### 3.2 The formal setup

Assume a set of worlds  $W$ , a set of propositions  $Prop \subseteq \wp(W)$ , and a set of questions  $Ques \subseteq \wp(Prop)$ , such that the conditions in (30) hold.

$$(30) \text{ a. } \forall Q \in Ques : \forall p, p' \in Q : p \not\subseteq p'$$

The alternative propositions in any question may be overlapping or disjoint, but one proposition cannot be contained in another.<sup>19</sup>

$$\text{b. } \forall Q \in Ques : \cup\{p \mid p \in Q\} = \cap \text{INFO}_c$$

The alternative propositions in any question form a cover over the common ground  $\text{INFO}_c$  at a context  $c$ , defined in (31).

(31) A context  $c$  is a tuple  $\langle \text{INFO}_c, \text{UQ}_c, \text{gran}_c \rangle$ , s.t.

$$\text{a. } \text{INFO}_c \subseteq Prop$$

b.  $\text{gran}_c$  is a set of granularity functions  $\gamma$  with a fineness ordering  $>_f$ .

$$\text{c. } \text{UQ}_c \subseteq Ques \text{ s.t.}$$

$$\text{i. } |\text{UQ}_c| \geq 1$$

$\text{UQ}_c$  allows for (**but does not require**) multiple construals  $Q$ .

$$\text{ii. } \forall Q \in \text{UQ}_c : \text{UQ} = \text{INFO}_c$$

Every construal  $Q$  of  $\text{UQ}_c$  is a cover on the common ground.

$$\text{iii. } \forall Q, Q' \in \text{UQ}_c : Q \neq Q' \rightarrow [Q \sqsupset_w Q' \vee Q' \sqsupset_w Q]$$

If  $\text{UQ}_c$  has distinct construals  $Q, Q'$ , then all such construals are ordered by  $\sqsupset_w$  (defined below).

The **wider than** relation ( $\sqsupset_w$ ) between questions, defined in (32), allows for a comparison between the inquisitiveness of questions.<sup>20</sup>

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the widest answerable question may distinguish between alternatives as finely as **possible** (given what the speaker believes can be truly determined) OR as finely as **necessary** (given what information the speaker thinks to be necessary to provide at that point in discourse). “as fine-grained/informative as possible/necessary” is a way of referencing the role of Quality and Relevance in determining answerability.

<sup>19</sup> This condition is inspired by the definition of an *Issue* in Inquisitive Semantics (Ciardelli, Groenendijk, and Roelofsen 2019), where the alternatives in an issue (information states) are defined as maximal elements and can never be fully contained in one another. This is somewhat different from the way in which alternatives are construed in Alternative Semantics or in Beaver and Clark (2008)’s framework, where it is possible for one alternative to be properly contained in another.

<sup>20</sup> According to Groenendijk and Stokhof (1984, p. 16), an interrogative  $q_1$  asymmetrically entails another interrogative  $q_2$  iff every proposition that (completely) answers  $q_1$  (completely) answers  $q_2$  as well. That is:  $\forall p \in Q_1 : \exists p' \in Q_2 : p \subset p'$ . Our definition of width is weaker than this notion of strength but still captures the notion of differential inquisitiveness of questions. In our analysis, we will be using the width relation between questions not to compare distinct interrogative clauses such as *Who did Mary meet?* and *Did Mary meet Nancy?*, but rather to compare the different construals of an underspecified question. The reason that question entailment is too strong for our purposes is that the granularity-based construals we consider in §4.7.1 generally cannot be ordered by entailment strength. For example, with a grain width of  $1/2$  year, the question *How much older than Siri is Fafen?* includes the alternative *Fafen is 1 1/2 years older than Siri*. That alternative does not entail any alternative contained in the construal that has a grain width of one

- (32)  $\forall Q_1, Q_2 \in Ques : Q_1 \sqsubset_w Q_2$  iff
- a.  $\cup Q_1 = \cup Q_2$
  - b.  $\forall p \in Q_2 : \neg \exists p' \in Q_1 : p \subset p'$   
No answer in  $Q_2$  is properly contained in any answer in  $Q_1$ .
  - c.  $\exists p \in Q_1 : \exists p' \in Q_2 : p \subset p'$   
Some answer in  $Q_1$  is properly contained in some answer in  $Q_2$ .

The **wider than** relation requires that no answer in the narrower question properly contain any answer in the wider question and that there be some answer in the wider question that does properly contain some answer in the narrower question. Thus, the wider question can potentially be resolved by an answer that is more informative than any possible answer to the narrower question, but no possible answer to the narrower question is more informative than any answer to the wider question.

### 3.2.1 The optimal question

Given a *non-singleton* set of questions  $Q \subseteq Ques$ , the **widest** question in  $Q$  is defined in (33).

- (33) **widest**( $Q$ ) =<sub>def</sub>  $\iota Q \in Q : \neg \exists Q' \in Q : Q' \sqsubset_w Q$   
A question  $Q$  is the widest question in a set of questions  $Q$  iff there is no  $Q' \in Q$  that is wider than it.

We need a further Gricean-in-spirit notion of the ANSWERABILITY of questions, relativized to a context and a speaker as in (34). Answerability allows us to restrict width-based comparison to those questions that also satisfy Quality and Relevance.

- (34)  $Q$  is ANSWERABLE at  $c$ , i.e.  $ANS(Q, c)$  iff
- a.  $Q$  satisfies Quality  
 $Sp_c$  has sufficient evidence that a true answer to  $Q$  is accessible to the interlocutors at  $c$ .
  - b.  $Q$  satisfies Relevance  
 $Sp_c$  considers answering  $Q$  to be relevant to the discourse goals at  $c$ .

For any non-singleton  $Q \subseteq Ques$  and context  $c$ , the OPTimal question in  $Q$  at  $c$  is defined in (35) relative to width and answerability. According to (35), the OPTimal question at  $c$  in a set of questions  $Q$  is the unique answerable question  $Q$  such that there is no strictly wider answerable question in  $Q$  than it.<sup>21</sup>

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year since the grain corresponding to 1 1/2 years in the partition with a 1/2 year grain width is not contained in any grain of the partition with a 1-year grain width, as can be seen in Figure 1 in §4.7.1.

<sup>21</sup> It is worth pointing out here that this notion of optimality is quite different from how the term has been used in work on precision (e.g. Krifka (2007), Klecha (2018)). There, the issue has to do with conditions under which more or less precise interpretations are chosen for more or less costly forms – i.e. it concerns optimal choice of interpretation given form or form given intended message assuming a complexity-informativity tradeoff. Determining the optimal question from among a set of question construals, on the other hand, does not involve inferences based on formal complexity; the construals differ only with respect to their inquisitiveness and/or their answerability at a discourse context.

$$(35) \forall Q : \text{OPT}_c(Q) = \iota Q \in Q[\text{ANS}(Q, c) \wedge \neg \exists Q' \in Q[Q' \sqsupset_w Q \wedge \text{ANS}(Q', c)]]$$

This notion of the optimal question as **the unique widest answerable question** in the context is central to our account of *just*. Note that a question  $Q \in \mathcal{Q}$  can fail to be the optimal question at a context  $c$  by failing to be the widest question, or by failing to contain a true answer that can be accessed by the interlocutors, or by failing to be (as) relevant to the discourse goals at  $c$ . As we will see, these ways to fail optimality will have consequences for how the current question that *just* references gets determined at a context. This, in turn, will allow us to make sense of why *just* sentences give rise to the different inferences that they do in interaction with context.

### 3.3 The lexical entry for *just*

The intuition is that *just* uniformly signals that the CQ distinguishes between alternatives as finely as is possible/necessary to best satisfy the conversational goals in  $c$ . In other words, the question addressed by the prejacent of *just* is the widest answerable question or the OPTimal question at  $c$ . The lexical entry for *just* is in (36):

$$(36) \llbracket \text{just} \rrbracket^c = \lambda p \lambda w : \text{OPT}_c(\text{UQ}_c) = \text{CQ}. p_{\gamma_{\text{CQ}}}(w)$$

where  $\gamma_{\text{CQ}}$  is the granularity level relative to which CQ is interpreted.

According to (36), *just* has two meaning components. Its not-at-issue contribution is that the optimal construal of the underspecified question  $\text{UQ}_c$  has been taken up for resolution.<sup>22</sup> By signaling the uptake of the widest answerable construal of  $\text{UQ}_c$ , the *just*-using speaker indicates that no further refinement of  $\text{UQ}_c$  is possible/necessary at  $c$ . Moreover, the uptake of this construal ensures that the widest domain of potential answers is being considered in addressing the CQ. The at-issue contribution of *just* is simply the prejacent.<sup>23</sup>

Given this lexical entry for *just* that takes it to be a signal that the widest answerable (= the optimal) question from among  $\text{UQ}_c$ 's construals is being taken up for resolution, one might ask: *Why* should a speaker signal that their discourse move addresses this optimal question? We think that the communicative motivations for this are similar to those with domain-widening polarity items. Speakers signal that they are considering the widest domain of alternative answers in precisely those contexts where such consideration would allow them to maximize the informative strength of their (true) contribution. Now, let us ask: *When* might a speaker want to signal that their discourse move addresses the optimal question? There are three logical possibilities in case there exists a unique widest construal for  $\text{UQ}_c$  at a context.

<sup>22</sup> *just*'s primary discourse function is that of signaling that the speaker has construed the contextually given  $\text{UQ}_c$  in a specific way. Although we have treated this content as backgrounded or presuppositional here, we leave the precise status of this meaning component as an issue for further research. What is crucial for us is that *just* offers a signal to the hearer that the speaker's contribution assumes a particular construal of the  $\text{UQ}_c$ , which affects the interpretation of the prejacent accordingly. See further discussion on this choice in §4.9.

<sup>23</sup> If the different construals of  $\text{UQ}_c$  vary by granularity function, then we require that both the current question CQ and the prejacent be interpreted relative to the same granularity function  $\gamma$ . This is natural since the prejacent is understood to be a member of CQ.

- (37) a. There exists a unique widest construal of  $UQ_c$  and it is answerable, satisfying Quality and Relevance. It is uncertain whether the listener will recover the information that the prejacent is in the optimal question at  $c$ .

*The speaker uses **just** to signal that CQ is the widest answerable question. Using **just** allows them to select a more informative alternative than they would be able to if the hearer assumed a less wide construal of  $UQ_c$ .*

- b. There are strictly wider construals of  $UQ_c$  that may be more relevant to discourse goals but none satisfy Quality, and therefore are not answerable.

*The speaker uses **just** to signal that all questions in  $UQ_c$  that are wider than CQ lack a true answer on the speaker's perspective. Using **just** allows them to eliminate more alternatives than they would be able to on a less wide construal of  $UQ_c$ .*

- c. There are strictly wider construals of  $UQ_c$  that may contain true answers but none of them satisfy Relevance, and therefore are not answerable.

*The speaker uses **just** to signal that answering any questions in  $UQ_c$  that are wider than CQ is not relevant to the discourse goals. Using **just** allows them to eliminate more alternatives than they would be able to on a less wide construal of  $UQ_c$ .*

Below we show in §4, that several effects of *just* described in §2 are reducible to one of the cases templatically described in (37).

## 4 Application

### 4.1 Accounting for complement-exclusion readings

As seen in §2.1, one of the effects of *just* is to exclude all focus-generated alternatives other than (or stronger than) the prejacent, often challenging contextual expectations that a proposition stronger than the prejacent is true. Our analysis needs to account for this upper-bounding or exhaustifying effect and the lower-than-expectation inference, seen for instance in (38), repeated from (3a).

- (38) A: Where did Mary go for her vacation this year?

B: She *just/only* went to Spain and Portugal.

↪ Mary did not go to any country other than Spain and Portugal.

↪ Mary was expected to go to more countries on her vacation.

Let the  $UQ_c$  be the one corresponding to the interrogative utterance by A in the context in (38). Keeping the domain of entities  $D_e$  constant, this  $UQ_c$  can receive a mention-some interpretation or a mention-all interpretation in context. It is evident that for any underspecified interrogative  $?xPx$ , its mention-all interpretation amounts to its widest construal at any context. This is because the mention-all construal corresponds to a question such that none of its alternatives are entailed by any alternative in any mention-some construal of the interrogative. The mention-all construal is also a partition, where the alternatives in the construal are mutually incompatible. If the speaker does have evidence for the accessibility of a true answer to the mention-all construal of  $UQ_c$ , then this construal is also answerable, making it the unique widest answerable (or optimal) question at the context, as defined in

(35). This corresponds to the class of contexts identified in (37a), where there exists a unique widest construal of  $UQ_c$  and it is answerable, satisfying both Quality and Relevance. In this case, by using *just*, the speaker signals that the optimal question is the CQ and thus ensures that the listener unambiguously recovers the information that the prejacent proposition is a member of the optimal question at  $c$ .

In contrast to Coppock and Beaver (2014), on our analysis, *just* does not conventionally encode that the prejacent is the strongest true answer in the CQ. The prejacent is simply understood to address the CQ via the Discourse Principle. Given that the prejacent does not denote an exhaustified proposition, i.e. *Mary went to Spain and Portugal* is true at worlds  $w$  in which Mary went to Spain and Portugal and any other set of countries, it is not clear *which* alternative in the optimal question is intended to be denoted by the prejacent. We suggest that the exhaustive interpretation of the prejacent seen in complement-exclusion readings arises as a non-cancellable Quantity implicature triggered by the use of *just* (see Lauer (2013), Lauer (2014) for discussion of non-cancellable or mandatory implicatures).<sup>24</sup>

A's reasoning for B's response in (38) would go as follows: (1) The *just*-containing utterance entails that the prejacent *Mary went to Spain and Portugal* is true. (2) The use of *just* signals that B has taken up the widest answerable construal of A's question as CQ. Since B chose to signal that the CQ is construed as the widest answerable question and the widest question is the mention-all construal of  $UQ_c$ , B must be in a position to answer that mention-all construal and must have intended to provide the true answer to it. (3) Given that B is addressing the mention-all construal of  $UQ_c$ , if Mary had gone to any other countries besides Spain and Portugal, B would have explicitly conveyed this information. (4) Therefore, B's claim is that Mary only went to Spain and Portugal and no other country.

#### 4.2 Accounting for rank-order readings

Next, consider the use of *just* with rank-orders, as seen in (39), repeated from (3b).

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<sup>24</sup> Lauer (2013), Lauer (2014) argues that the existence of mandatory conversational implicatures is predicted by optimization-based formalizations of Gricean reasoning. In such theories, conversational implicatures are taken to be inferences about the speaker's beliefs/preferences that the addressee draws based on the assumption that the speaker chose his utterance so as to optimally satisfy some set of constraints, given her beliefs. The idea is that such theories determine on the one hand a set of contexts  $C_{e \rightsquigarrow i}$  where the use of expression  $e$  will give rise to an implicature  $i$ . On the other hand, such theories also determine a set of contexts  $C_{Opt(e)}$  where the use of expression  $e$  is optimal, given the speaker's beliefs. An implicature  $i$  would then be mandatory if the set of contexts in which  $e$  is optimal is a subset of the set of contexts in which  $i$  arises from the use of  $e$ , i.e.  $C_{Opt(e)} \subseteq C_{e \rightsquigarrow i}$ . Lauer takes the implicature associated with unembedded disjunction to be of such as kind, paraphraseable as: The speaker had a reason to not give more information. Such an implicature arises mandatorily because the alternative expressions (each individual disjunct) that could have been chosen by the speaker are less complex and shorter than the disjunction. We take the use of *just* to license a mandatory implicature because the *just*-less alternative (the bare prejacent) will always be shorter and less complex than the speaker's choice containing *just*, triggering the inference that the speaker had a reason to explicitly convey that the widest answerable question is being addressed by the prejacent.

(39) A: What is Mary's job at the hospital?

B: She is *only/just* an intern.

↪ Mary is nothing more senior than an intern.

↪ Mary's seniority in the medical profession was expected to be at a higher level than an intern.

On our analysis, the rank-order effect arises as follows: The mention-all construal of the  $UQ_c$  *What is Mary's job at the hospital?* is the set of alternatives that differ with respect to the exhaustive listing of the relevant jobs (ordered by degree of power/autonomy) that Mary might have at the hospital. In general, for any  $UQ_c$  of the form *?PPm*, given a set of contextually salient, relevant properties, its mention-all interpretation is its widest construal at any context. If the speaker does know the true answer to the mention-all construal of  $UQ_c$ , then this construal is also answerable, making it the optimal question at the context, as defined in (35), corresponding to the class of contexts in (37a). By using *just*, the speaker asserts that the optimal question is the CQ and thus ensures that the listener unambiguously recovers the information that the prejacent is a member of the optimal question at *c*. As with complement-exclusion readings, the prejacent by itself does not denote an exhaustified proposition and is compatible with any alternative in the optimal question where Mary has any other relevant property in addition to being an intern. The exhaustified interpretation arises, like before, as a non-cancellable Quantity Implicature, a pragmatic enrichment triggered by the use of *just*. In other words, in answers to questions about what properties some individual has (given a pre-determined set of contextually restricted properties), the speaker's use of *just* conventionally signals that the question is being construed as a mention-all question. The hearer, upon encountering the *just*-containing utterance, infers that the speaker intends to provide an exhaustive listing of the relevant properties that the individual has. Thus, the basic rank-order, upper-bounding effect comes about whenever the  $UQ_c$  has to do with which among a contextually given ordered set of properties an individual has.

#### 4.2.1 Domain-widening in rank-order readings

Existing analyses of rank-order readings implicitly assume that the set of relevant properties (which determines the alternatives in the  $UQ_c$ ) is always shared between the interlocutors. This entails that there can be exactly one possible mention-all construal of the  $UQ_c$  at a given context. But on a domain-widening analysis, the speaker, by using *just*, can sometimes also signal that they are widening the domain of relevant properties under consideration to distinguish more alternatives than their interlocutor might have assumed to be potential answers. The effect is a finer-grained partition over the common ground than one that would be allowed by a more restricted set of properties. So, for a question like *What is Mary's job at the hospital?*, the questioner's version of the question may look like (40a), leaving some alternatives undistinguished.<sup>25</sup> The *just*-using speaker, on the other hand, signals that they

<sup>25</sup> A reviewer points out rightly that there is no reason for specific alternatives like "human resource manager" to be in the questioner's version of the question and not "lab-technician." We agree. But it is not the specific alternatives themselves that are relevant in the comparison between less-wide and more-wide construals of an underspecified question. It



### 4.3 Accounting for minimal sufficiency readings

§2.4 described the minimal sufficiency reading, in which the prejacent expresses that some proposition  $p$  (usually expressed as an nominal phrase) is causally sufficient for another proposition  $q$  to obtain. The use of *just* conveys that nothing more/stronger than  $p$  is causally necessary for  $q$  while allowing that stronger alternatives  $p'$  are also sufficient for  $q$  to obtain. This is illustrated with (42).<sup>27</sup>

(42) Just a 3.5 GPA is sufficient for Jason to stay in the program.

Let the question in the context be something like in (43a), which can be expressed as (43b), letting  $s$  stand for the proposition corresponding to *Jason stays in the program*.

(43) a. What GPA is sufficient for Jason to stay in the program?

b.  $\{\lambda w. \text{SUFF}(s)(p)(w) \mid p \in \{\lambda w. \text{Jason gets } n \text{ GPA in } w \mid n \leq 4\}\}$

The prejacent to *just* answers this question as follows: *A 3.5 GPA is sufficient for Jason to stay in the program*. The view that we have been advocating is that what the context provides is, in fact, an underspecified question  $\text{UQ}_c$ , which is compatible with multiple construals. For the case at hand, note that “sufficiency” itself is a context-sensitive notion. This means that a claim that “ $p$  is sufficient for  $q$ ” is underspecified as to whether  $p$  is the smallest/minimal cause whose occurrence guarantees the effect  $q$ , or if it is greater than the smallest cause (to some contextually given degree).

For example, consider a context where Jason is worried about whether he can stay in the program and shows his advisor his transcript. His advisor knows that the minimum GPA to be allowed to stay in the program is 3. She sees that Jason has a 3.5 GPA and says to Jason: “Don’t worry, a 3.5 GPA is sufficient for you to stay in the program.” In this case, the 3.5 GPA ( $p$ ) is a cause whose occurrence guarantees the effect of Jason’s staying ( $q$ ), but it is clearly not the smallest/minimal cause – that would be a GPA of 3. In other words, the alternative expressed by Jason’s advisor at the context contains those worlds in which the minimum GPA sufficient for staying on is between 3.5 and 3 rather than the subset of worlds in which the minimum GPA is exactly 3.5. More generally, any interrogative of the form “what cause  $p$  guarantees the effect  $q$ ?”, is underspecified with respect to whether  $p$  is understood to be a minimal or non-minimal cause whose occurrence guarantees  $q$ .

The contribution of *just* in sentences that exhibit the minimal sufficiency reading is to ensure that the  $\text{UQ}_c$  is construed as the widest question – a set of alternatives that distinguishes between worlds  $w$  in terms of what  $p$  is *minimally* sufficient to guarantee  $q$  at  $w$ . Or in other words, worlds  $w$  are distinguished by the smallest  $p$  such that nothing more/greater than  $p$  is necessary to guarantee  $q$  at  $w$ . For the case

<sup>27</sup> Nothing hinges on the choice of the expression *sufficient* in this example. All structures in which *just* could potentially give rise to the minimal sufficiency reading necessarily involve a (causal) sufficiency component and presuppose a background causal structure. This component can be accessed through specialized causative expressions like *let*, *make*, *allow*, any other verb where the subject argument may bear a “causer” (rather than agent) role (*send*, *break*, *shatter* etc.) or the conditional construction. We could have expressed the target sentence as *A 3.5 GPA will let Jason stay in the program* or *If Jason maintains a 3.5GPA, he can stay in the program* or other alternatives with *allow* or *keep*.



at hand, this construal ( $=\text{CQ}$ ) is guaranteed to be a partition on  $\text{INFO}_c$  such that each cell contains the set of those worlds  $w$  that agree perfectly on the **smallest** GPA  $n$  such that nothing more than  $n$  is necessary for Jason to stay in the program at  $w$ .<sup>28</sup> We abbreviate the prejacent of (42) as  $\lambda w. \text{SUFF}(s)(g_{3.5})(w)$ , where  $g_{3.5}$  stands for *Jason maintains a 3.5 GPA*. Applying *just* to this, we get the proposition in (44).<sup>29</sup>

$$(44) \quad \begin{aligned} \llbracket(42)\rrbracket^c &= \lambda p \lambda w : \text{OPT}_c(\text{UQ}_c) = \text{CQ}. \quad p(w) \quad (\lambda w. \text{SUFF}(s)(g_{3.5})(w)) \\ &= \lambda w : \text{OPT}_c(\text{UQ}_c) = \text{CQ}. \quad \text{SUFF}(s)(g_{3.5})(w) \end{aligned}$$

(44) conveys that the CQ that the prejacent addresses is the widest answerable construal of the  $\text{UQ}_c$  – i.e. one in which alternatives are distinguished by the minimal sufficient GPA. By the default Discourse Principle, the prejacent is understood to be a member of this widest construal.<sup>30</sup> But like with complement exclusion and rank order readings, the prejacent does not denote an exhausted proposition (which would be *A 3.5 GPA (and nothing less) is sufficient for Jason to stay in the program*). The exhausted interpretation again arises as a mandatory Quantity Implicature, triggered by *just*. The hearer reasons that given that the speaker has conventionally signaled that the widest construal of the  $\text{UQ}_c$  is being taken up as the CQ, if anything less than a 3.5 GPA was sufficient for Jason to stay in the program, they would have explicitly said so. (42) is thus pragmatically enriched to express a proposition that is true in those worlds where nothing less than a 3.5 GPA is sufficient for Jason staying in the program. On the enriched reading, this entails that for Jason staying in the program (a) no higher GPA is necessary, and (b) any higher GPA is also sufficient.<sup>31</sup>

#### 4.4 Accounting for the unexplanatory uses

In the *unexplanatory* use, discussed in §2.5, *just* conveys that the prejacent has no identifiable cause or explanation, as in (45), repeated from (14).

- (45) A: Why is the lamp broken?  
 B: I was sitting there and the lamp *just* broke! Wiegand 2018, p. 419  
 $\rightsquigarrow$  The speaker can identify no explanation for the lamp's breaking.

We take the unexplanatory effect of *just* to potentially arise in the class of contexts described in (37b). In such contexts, there exist construals of the  $\text{UQ}_c$  that are wider

<sup>28</sup> Any construal that contains propositions corresponding to a subinterval of the GPA scale that also includes GPAs **above** the minimum sufficient GPA will be less wide than the question that contains propositions corresponding only to the minimum sufficient GPA. This is because if  $n$  is a sufficient GPA to stay in the program, any  $m$  s.t.  $4 \geq m > n$  is a sufficient GPA to stay in the program.

<sup>29</sup> Since there is no expression in the interrogative or the declarative whose interpretation is sensitive to a level of precision, we have omitted the granularity function  $\gamma$  subscript in the lexical entry for *just* here for ease of exposition.

<sup>30</sup> To remind the reader, the Discourse Principle of Beaver and Clark (2008) requires that utterances should be maximally relevant to the current question.

<sup>31</sup> To be clear, like with rank-order effects, we have no account of the robust observation with minimal sufficiency uses that the cause guaranteeing the effect is understood to be “lower than expected” – an instance of low-on-the-scale downtoning mirativity. Grosz (2012) stipulates this via distinct lexical entries for minimal sufficiency and exclusive *only/just*, a type of move we are reluctant to make.

than the CQ but they are not answerable because they do not satisfy Quality. In unexplanatory uses, it is obvious that the CQ is strictly weaker than the widest construal of the  $UQ_c$ ; in fact it is even weaker than what the questioner expects to be a reasonable construal of the question. It is in contexts where the prejacent provides no information relevant to answering the why-question that the *just*-using speaker is taken to convey that any strictly wider construal of  $UQ_c$  than the CQ lacks a true answer on their perspective. The unexplanatoriness inference associated with *just* arises precisely when the CQ is the trivial question that effects no refinement of the common ground and the speaker takes this to be the widest answerable question at  $c$ .

In (45), although the prejacent responds to a *why*-question that seeks an explanation for why the lamp broke, it provides no refinement of the common ground. This is characteristic of all unexplanatory uses. We suggest that through the use of *just*, the speaker asserts that the *weakest* construal of  $UQ_c$  – the disjunction of all possible causes, which is a trivial question over the common ground – is actually the widest answerable construal and taken to be the CQ. All wider construals of  $UQ_c$  fail Quality because the speaker does not have sufficient evidence that a true answer to any of these construals is accessible. If the possible causes for the lamp breaking are that the cat jumped over it, or that there was a mild earthquake, or that there was a very strong wind, or that a screw came apart, the optimal question (= CQ) contains one answer – the disjunction of these four causes, which is identical to the common ground. The prejacent entails this answer and therefore does not violate the Discourse Principle introduced in §3.1.1. By using *just* in unexplanatory cases, the speaker conveys that they have considered alternatives in wider construals of the  $UQ_c$  but do not have sufficient evidence that any true answer among these is accessible to the interlocutors at  $c$ . The *just*-claim is therefore informative because it explicitly rules out further refinement of the common ground with respect to the  $UQ_c$ .<sup>32</sup>

#### 4.5 Accounting for the unelaboratory uses

In the *unelaboratory* use, discussed in §2.6, the speaker uses *just* to reject the possibility of any more informative answer than the prejacent at the context. The answer offered by the speaker is understood as failing to be sufficiently elaborate from the questioner's perspective. (46), repeated from (17c), illustrates this.

- (46) A. What kind of dog is Fido?  
 B. Fido is *just* a dog. Warstadt 2020, p. 376  
 ↪ Fido is an ordinary dog, or a mutt (and the speaker sees no need for further information)

We take the unelaboratory effect of *just* to potentially arise in the class of contexts described in (37c). As stated there, in such contexts, there exist construals of the

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<sup>32</sup> We do not discuss here the weak explanation use of *just* such as that exemplified in (16) for space reasons. We take such uses to be a variant of the more familiar rank-order readings, where the evaluative scale is not constructed by making reference to properties denoted by specific lexical expressions organized along a scale, but rather by an evaluation of distinct propositions in terms of their explanatory power relative to the proposition sought to be explained.

$UQ_c$  that are wider than the CQ, but they are not answerable because they do not satisfy Relevance. That is, asserting an alternative from a wider construal is not relevant to the discourse goals, according to the speaker. Note that the widest answerable construal of the  $UQ_c$  in unelaboratory uses is still a mention-all construal or a (single-celled) partition. In the specific case in (46), the speaker is still understood to provide an exhaustive description of what Fido is. It is just a coarser-grained partition than might be expected at the context. Using *just* allows the speaker to convey that they have indeed considered alternatives in all wider construals of the  $UQ_c$  and eliminated them as possible answers due to lack of discourse relevance – no finer-grained alternative than the prejacent is relevant in the context.

We are grateful to a reviewer for pointing us to yet another type of unelaboratory use of *just* – the indifference-marking use, discussed in Rawlins (2015). In (47), the use of *just* (or *simply*), conveys that the descriptive content of the phrase *whatever tool was handy* satisfies the discourse goals at the context, i.e. the speaker is indifferent to using more specific or fine-grained descriptions for individuating the referent.<sup>33</sup> These indifference-marking uses are subsumable under (37c) as well, in that there are strictly wider construals of  $UQ_c$  (*what tool did Alfonso grab?*) that contain true answers known to the speaker, but none of them satisfy Relevance, and therefore do not satisfy answerability.

(47) Alfonso *just/simply* grabbed whatever tool was handy.

↪ The speaker sees no need for more fine-grained or precise ways of describing the referent.

#### 4.6 Accounting for the counterexpectational uses

In the *counterexpectational* use, discussed in §2.7, *just* conveys that the prejacent describes a situation that does not accord with a set of normative expectations, as in (48), repeated from (18a).

(48) A: What happened to your relationship?

B: He started seeing an ex-girlfriend and *just* stopped texting me.

↪ The subject referent failed to adhere to norms for relationship closure in the context. (Wiegand 2018, p. 423)

What we noted there was that *just* can broadly signal deviation from cultural, legal, or behavioral norms. This element of unexpectedness or surprise associated with *just* is naturally accounted for by a domain-widening analysis of the sort we have proposed. This specific mirative effect arises in the class of contexts in (37a), when the  $UQ_c$  is an open-ended *what happened* question. In such cases, the *just*-using speaker conveys that they are taking the CQ to be the widest construal of the  $UQ_c$ . This construal involves widening the set of alternative answers beyond those that they assume the hearer to consider as viable at a given context. Consideration of this widened set of alternative answers allows the speaker to select an alternative that is unexpected or surprising to the hearer (on the speaker's perspective) at that context.

<sup>33</sup> It is possible but not necessary that this descriptive choice is motivated by the fact that it did not matter for the agent's (Alfonso's) real-world goals what tool he actually used.

One may ask, as a reviewer does, if the mirativity here is directly contributed by *just* or if it comes about due to the exclamative contour, which is obligatory in all our counterexpectational examples. Teasing apart the contribution of each linguistic strategy is difficult, as Beltrama and Hanink (2019) also discover in their treatment of mirative *like*.<sup>34</sup> The exclamative contour certainly forces “uptoning (greater than expected) mirativity” with *just*, while in complement-exclusion, rank-order, and weak-explanation uses *just* gives rise to “downtoning (weaker than expected) mirativity”. This is consistent with the hypothesis that *just* by itself only signals that the widest answerable set of alternatives has been accessed via the question construal, while the intonational contour aids in determining which direction the speaker considers the distinguished prejacent to be in relative to contextual expectations.

#### 4.7 Accounting for uses involving precisification

Precisifying uses arise in contexts where the construals of the  $UQ_c$  differ according to the scale granularity at which they are interpreted, and the optimal question is the construal interpreted at the finest possible granularity level.

##### 4.7.1 Precisifying uses

As noted in §2.3.1 and §2.3.2, we identify two kinds of precisifying uses of *just*: equality-denoting and proximity-denoting. The equality-denoting uses are paraphraseable with *exactly* and express that the prejacent is true *even* at the highest level of precision, while the proximity-denoting uses are paraphraseable with *slightly* or *barely* and express that the prejacent is true *only* at the highest level of precision. In spite of this intuitive difference, we claim they arise via the same mechanism.

##### (49) Equality-denoting uses

- a. The tank is *just* full.
- b. The tea was *just* right.

##### (50) Proximity-denoting uses

- a. Fafen is *just* older than Siri.
- b. The city was *just* visible in the distance.

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<sup>34</sup> Our intuition and treatment of the counterexpectational use are similar to Beltrama & Hanink’s treatment of mirative *like* in that the effect emerges due to a widening of alternatives under consideration. According to them, the use of mirative *like* widens the context set to admit worlds that were previously not under consideration due to their perceived outlandishness. Since we are comparing covers on the same common ground/context set for their informativity, we do not change the admissible set of worlds but rather let *just* distinguish finely between alternatives that may be left undistinguished or non-salient in coarser construals of the underspecified question. The mirative effect arises in counterexpectational uses because the use of *just* indicates that the prejacent was not available/salient as a distinguished alternative under coarser construals of the question presumed at the context.

We first consider *just* in comparative constructions such as in (52b). Such sentences can be used to answer questions of the form *How much A-er...*<sup>35</sup>

(52) A: How much older than Siri is Fafen?

B: Fafen is [*just*]<sub>F</sub> older than Siri.

All precisifying uses require *just* to be focused. To the best of our knowledge, precisifying uses are the only uses that require *just* to be focused in all contexts. If some other expression in the preadjacent is focused, then the precisifying reading is unavailable. An unelaboratory or unexplanatory reading may be available instead if the speaker can be inferred to have a reason not to provide the requested information.<sup>36</sup>

In contrast, when *just* is focused as in (52), the alternatives evoked seem to be those that are distinguished by the requested difference in age. In other words, the alternatives in (52) are propositions denoted by sentences of the form *Fafen is x older than Siri*, where *x* is a quantity of time. On the standard theory of focus due to Rooth (1985) it is not immediately clear how focusing *just* would evoke such alternatives, as *just* does not have the same type as the degree-denoting expressions that distinguish the alternatives (e.g. *one year, two years, etc.*). But previous research has made clear that *just* can access alternatives that are not classical Roothian focus alternatives: Windhearn (2021), drawing inspiration from Orenstein (2015)'s analysis of Hebrew *STAM*, argues that the unexplanatory use of *just* involves alternatives generated by a covert sentence element, which cannot be prosodically focused. The present analysis does not involve any covert sentence elements, but we do take the alternatives in the precisifying case to not be Roothian focus alternatives. We suggest that focus is instead placed on *just* as a last resort: To achieve question-answer congruence, some

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<sup>35</sup> Note that B's answer in (52) can also be uttered in response to a polar question, as in (51). In this case, B's utterance is an over-answer to every possible construal of the polar question, so we assume that the hearer accommodates the "how much" question in (52).

(51) A: Is Fafen older than Siri?

B: Yes, Fafen is *just* older than Siri.

<sup>36</sup> This contrast is seen in (53): Prosodic prominence on *just* produces a precisifying reading in (53a), while prominence on *cheaper* produces an unelaboratory reading in (53b).

**Context:** A and B see a nice purse on sale. A knows that B recently bought a cheap purse on Amazon. A asks: How much cheaper was the purse you got?

(53) a. B: It was [*just*]<sub>F</sub> cheaper than this one.

b. B': It was *just* [*cheaper*]<sub>F</sub> than this one. (None of your business how much cheaper.)

The contrast between (53a) and (53b) can be explained by the Focus Principle. In (53b), the Focus Principle requires the CQ to be construed in such a way that all of its alternatives are focus alternatives of *It was [cheaper]<sub>F</sub>*. Since none of the focus alternatives of that sentence actually resolve the question (at any level of granularity), the only construal of the UQ<sub>c</sub> that satisfies the Focus Principle is the one that contains only the single alternative corresponding to the set of worlds in which the purse B bought on Amazon was cheaper than the one A and B are looking at. This gives rise to an unelaboratory reading in the manner discussed in Section 4.5.

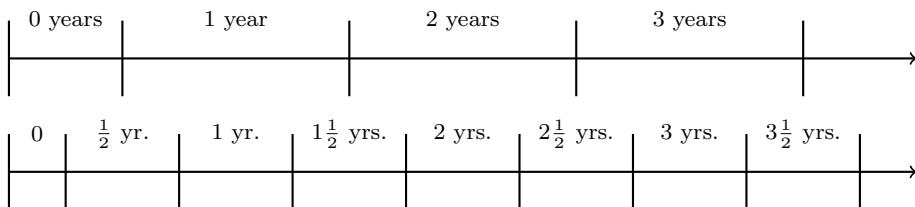


Fig. 1: An age scale partitioned according to a coarser granularity function (upper) and a finer granularity function (lower).

element of the sentence must bear focus, but if focus were placed on any element other than *just*, the wrong alternatives would be evoked. Focusing *cheaper*, as seen in (53b), results in an unelaboratory reading, while focusing any other element of the sentence besides *just* would evoke a set of alternatives that does not contain the alternatives in the CQ. Focus on *just* in (52) results in a construal of A’s question such that its alternatives vary according to how much older than Siri Fafen is. This is true when the  $UQ_c$  is interpreted at any granularity level, but *just* requires the CQ to be the widest construal of  $UQ_c$ . This corresponds to the class of contexts described in (37a) – with the additional specification that  $UQ_c$  is interpretable with respect to differing granularity levels. In this case the widest answerable construal of  $UQ_c$  is its interpretation at the finest permissible granularity level. To see why, consider Figure 1, which shows two different scale granularities with respect to which the question *How much older than Siri is Fafen?* can be interpreted. The upper part of the figure shows the possible answers to the question at a grain width of one year, and the lower part of the figure shows the possible answers at a grain width of half a year. No interval in the finer-grained partition of the scale contains any interval in the coarser-grained partition of the scale, and thus no answer to the finer-grained construal of the question entails any answer to the coarser-grained construal, satisfying (32b). At the same time, there are intervals of the coarser-grained partition that properly contain intervals of the finer-grained partition, satisfying (32c).

We call the finest permissible granularity level  $\gamma_{\text{finest}}$ , and in general we assume that given a proposition  $p$  and a context  $c$ , there is always a granularity function  $\gamma_{\text{finest}}$  that represents the finest permissible granularity level with respect to which  $p$  can be interpreted in  $c$ . The value of  $\gamma_{\text{finest}}$  depends on both properties of  $p$  and properties of  $c$  (see Thomas and Deo 2020).

Since the CQ is  $UQ_c$  interpreted with respect to  $\gamma_{\text{finest}}$  (i.e.,  $\gamma = \gamma_{\text{finest}}$  in (36)), the prejacent is understood to be true relative to  $\gamma_{\text{finest}}$  as well according to (36). This amounts to an inference that Fafen is older than Siri by *at least* the smallest amount that is relevant at  $\gamma_{\text{finest}}$ . The derivation of the meaning of B’s answer in (52) is given in (54), where  $f$  is the proposition that Fafen is older than Siri.

$$\begin{aligned}
 (54) \quad & \llbracket \text{Fafen is just older than Siri} \rrbracket^c \\
 & = \llbracket \text{just} \rrbracket^c (\llbracket \text{Fafen is older than Siri} \rrbracket^c) \\
 & = \lambda w : \text{CQ} = \text{OPT}_c (\{ \llbracket \text{How much older than Siri is Fafen?} \rrbracket_\gamma \mid \gamma \in \text{gran}_c \}). f_{\gamma_{\text{CQ}}}(w) \\
 & = \lambda w : \text{CQ} = \llbracket \text{How much older than Siri is Fafen?} \rrbracket_{\gamma_{\text{finest}}}. f_{\gamma_{\text{finest}}}(w)
 \end{aligned}$$

We now need to account for the inference that Fafen is older than Siri by *no more than* the smallest relevant amount. As argued in Thomas and Deo (2020), this can be understood as the inference that the prejacent is false at all granularity levels coarser than  $\gamma_{\text{finest}}$ . In other words, the difference between Fafen and Siri's ages is small enough that it is undetectable at any coarser granularity than  $\gamma_{\text{finest}}$ .

As before, the upper-bounding, exhaustifying interpretation of the prejacent arises as a non-cancellable Quantity Implicature, triggered by *just*. The hearer reasons that given that the speaker has conventionally signaled that the widest construal of the  $\text{UQ}_c$  is being taken up as the CQ, they must intend to provide a true answer relative to the construal at  $\gamma_{\text{finest}}$ . If it were true that Fafen was older than Siri at some coarser level of granularity than  $\gamma_{\text{finest}}$ , then the speaker's assertion that Fafen is older than Siri at  $\gamma_{\text{finest}}$  (rather than a coarser granularity level) would be underinformative and would not constitute a complete answer to the CQ. It must therefore be the case that Fafen is older than Siri *only* with respect to  $\gamma_{\text{finest}}$  and no coarser granularity level.

*Just* can also effect precisification when it combines with certain bare adjectives. With some minimum-standard adjectives, *just* has the same proximity-denoting effect that it has with comparatives. For example, (50b) conveys that the city was visible to a degree that is distinguishable only at the highest level of precision.<sup>37</sup>

On the other hand, an equality-denoting use of *just* can occur with adjectives that have been classified as maximum-standard adjectives, that is, gradable adjectives whose standard of comparison is taken to be a scale endpoint, such as *full* (see Kennedy and McNally (2005) for diagnostics). For example, in the web example in (8a), *just full* is equivalent to *exactly full*. To see how this meaning can be derived, consider the structurally simpler example in (55). The optimal question is again the construal of  $\text{UQ}_C$  at  $\gamma_{\text{finest}}$ . *Just* conveys that its prejacent is intended to answer that construal of the question, and it follows that the tank is full at the highest level of precision. For further discussion, see Thomas and Deo (forthcoming) which uses a simplified version of the present analysis to analyze the behavior of *just* with maximum-standard adjectives.

(55) Q: How full is the tank?

A: The tank is *just* full.

The precisifying effect of *just* in interaction with the other expressions we saw in §2.3.1 and §2.3.2 (e.g. *right*, *over*, *enough*, and *past*) should be able to be accounted for in a similar way and we leave the precise implementation for later exploration.

#### 4.7.2 Temporal uses

Just like the proximity-denoting uses in comparatives, the temporal use conveys that the widest construal of  $\text{UQ}_c$  is taken to be the CQ. But now the granularity functions in  $\text{gran}_c$  are those that partition time into intervals of varying sizes. For instance, in B's answer in (56), the use of *just* signals that the  $\text{UQ}_c$  *When did your sister get*

<sup>37</sup> Puzzlingly, there are some minimum-standard adjectives that do not permit this sort of precisification. *Dirty* is one example: *The floor is just dirty* does not have a precisifying reading. We leave this puzzle for future work.

*here?* is to be interpreted with respect to  $\gamma_{\text{finest}}$ , i.e., the interpretation that requires an answer that makes reference to a maximally precise temporal interval.

(56) A: When did your sister get here?

B: My sister *just* got here.

The assertion in (56) then entails that the prejacent *My sister got here* is true with respect to  $\gamma_{\text{finest}}$ . The truth conditions of *My sister got here* with respect to any granularity level  $\gamma$  are that the time that has elapsed between the arrival time of the speaker's sister and the utterance time is non-zero with respect to  $\gamma$ , which means that the time that has elapsed is greater than the grain width of  $\gamma$ . If the difference between the utterance time and the sister's arrival time is less than the grain width of  $\gamma$ , then that difference is equivalent to zero according to  $\gamma$ , and so it is not true that the sister arrived in the past; rather she is currently arriving. Sentence (56) therefore entails that the amount of time that has elapsed since the sister arrived is *at least* the grain width of  $\gamma_{\text{finest}}$ . Accounting for the upper-bounding, exhaustifying inference that the time that has elapsed since the sister arrived is *no more* than the grain width of  $\gamma_{\text{finest}}$  requires appeal to the same reasoning as with the comparative constructions.

#### 4.8 Accounting for emphatic uses

As noted in §2.2, emphatic uses of *just* arise with adjectives that Morzycki (2012) classifies as extreme adjectives, such as those in (57).

(57) a. The food was *just*(/simply/downright) [amazing]<sub>F</sub>!

b. The Empire State Building is *just*(/simply/downright) [enormous]<sub>F</sub>!

Morzycki only considers extreme adjectives that access open scales, but Beltrama (2021) examines the emphatic use of *just* with *perfect*, a maximum-standard adjective that is said to involve an upper-closed scale.<sup>38</sup> According to Beltrama (2021), the emphatic use of *just* involves a kind of precisification. He claims that a sentence containing an extreme predicate, for example *The essay is perfect*, can be asserted in a context in which the essay is not, strictly speaking, perfect, but nonetheless approximates perfection very closely. On his analysis, *just* conveys that the prejacent is the finest-grained description of the state of affairs under consideration that is “assertion-worthy”. Thus, *The essay is just perfect* rules out more fine-grained descriptions such as *The essay is basically perfect* (which would convey that the essay merely approximates perfection), thereby conveying that the essay is perfect at the highest level of precision.

We do not share Beltrama's intuition that *The essay is perfect* can be felicitously be uttered in a context where the speaker believes that the essay merely approximates perfection. More generally, we claim that extreme predicates can **never** be used imprecisely. Evidence for this is the fact that such predicates fail to combine felicitously with *roughly speaking* (also *sorta*), as shown in (58a). In this regard,

<sup>38</sup> This is demonstrated by the fact that *perfect* combines felicitously with totality modifiers like *completely*. See Kennedy and McNally (2005) for more diagnostics for maximum-standard adjectives.



they contrast with the canonical maximum-standard adjectives shown in (58b), which other authors have also reported can be used imprecisely (see Kennedy and McNally 2005; Sauerland and Stateva 2007) We take this to indicate that the interpretation of extreme predicates is not relativized to a granularity level. It follows then that the emphatic use of *just* cannot involve the kind of precisification we treated in §4.7.1.

- (58) a. #Roughly speaking, this soup/this essay is amazing/perfect.  
 b. Roughly speaking, this tank/theater is full/empty.

We restrict the present discussion to extreme predicates that access upper-open scales, such as *amazing*, but see Thomas and Deo (forthcoming) for discussion of extreme maximum-standard adjectives. Following Morzycki (2012) we take this class of adjectives to make reference to a “zone of indifference”—a set of degrees that are “off the scale” in the sense that they are so high on the scale that they fall outside of the set  $C$  of degrees that the speaker believes to be reasonable degrees to consider in the context. Distinctions between degrees located in the zone of indifference are irrelevant for the purposes of the conversation because the fact they are in the zone of indifference is all that matters to the speaker. In other words, all degrees in the zone of indifference are taken to be equal to (or “rounded down” to) the maximum contextually relevant degree  $\mathbf{max}(C)$ . For example, *This soup is amazing* conveys that the soup’s degree of tastiness is higher than the speaker expected to be plausible, so it does not register on the contextually relevant scale and is therefore indistinguishable from what the speaker took to be the maximal degree of tastiness.

The emphatic use of *just* arises when the  $UQ_c$  is a “how much?” or “to what degree” question, as in (59).

- (59) Q: How tasty is that soup?  
 A: This soup is *just* amazing!

We suggest that the construals of the  $UQ_c$  for the emphatic use vary according to  $\mathbf{max}(C)$ . Construals with a higher  $\mathbf{max}(C)$  distinguish between some of the degrees that fall within the zone of indifference of construals with a lower  $\mathbf{max}(C)$ . This is illustrated in Figure 2, where two sets of possible answers to the question *How tasty is that soup?* are shown with the scale intervals they correspond to. The dashed portion of the scale is the zone of indifference.

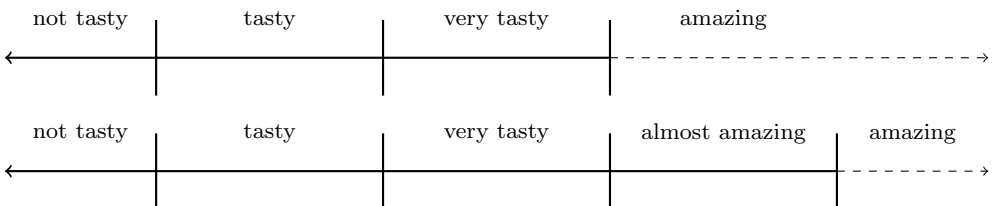


Fig. 2: The alternatives contained in a narrower and wider construal of *How tasty is that soup?*, shown with the scale intervals they correspond to. The dashed portion of the scale is the zone of indifference.



#### 4.8.1 Emphatic uses beyond adjectives

We now consider the effect of *just* with quantifiers and superlatives. In (61), adapted from (6a), *just* conveys that the domain of *every* is as wide as possible.

(61) A: Which emotions was the funeral full of?

B: The funeral was full of *just* every emotion you can imagine.

Once again, *just* accomplishes this by conveying that the CQ is the widest answerable construal of  $U_{Q_c}$ . On narrower construals of the  $U_{Q_c}$ , there might be some emotions that are taken to be irrelevant and therefore not included in the domain of *every*. If jealousy, for example, is excluded from the set of relevant emotions, then each partition cell of a narrower construal would include both worlds in which the funeral was full of (or at least contained some) jealousy and worlds in which the funeral was not full of jealousy. On the widest construal of the  $U_{Q_c}$ , we distinguish alternatives considering the presence/absence of every possible emotion, including jealousy. Therefore, each cell of the widest construal would contain worlds that agree with respect to all the emotions the funeral was full of, including jealousy. The cell corresponding to the prejacent *The funeral was full of every emotion you can imagine* would exclude worlds in which the funeral was not full of jealousy.

When emphatic *just* occurs with a superlative the  $U_{Q_c}$  has to do with how something is ranked with respect to a given property within some comparison class. For example, in (62), the comparison class consists of possible bathroom colors.

(62) A: How do pink bathrooms compare to other-color bathrooms?

B: Pink bathrooms are *just* [the BEST]<sub>F</sub>!

Possible alternative cells in a given construal of the  $U_{Q_c}$  would correspond to answers like *Pink bathrooms are the best*, *Pink bathrooms are second-best*, *Pink bathrooms are the worst*, etc. As in the case of *every*, on a narrow construal of the question, there might be some colors that are taken to be irrelevant and therefore not considered in the comparison with pink (relativized to bathrooms). If chartreuse, for example, is excluded from the set of relevant bathroom colors, then each partition cell of a narrower construal would include both worlds in which pink bathrooms are better than chartreuse bathrooms and worlds in which pink bathrooms are *not* better than chartreuse bathrooms. On the widest construal, every possible color must be considered, including chartreuse. Therefore, each cell of the widest construal of the  $U_{Q_c}$  would contain worlds that agree on the ranking of pink bathrooms, relative to all other color bathrooms, including chartreuse. The cell corresponding to the prejacent

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of the  $U_{Q_c}$  is that the scale includes stronger alternatives than *tasty*, and consequently the assumption that the speaker intended to fully answer the CQ results in a non-cancellable implicature that the stronger alternatives are false, which, as seen in §4.1, results in a complement exclusion reading. Thus *The soup was just tasty* means that the soup was no more than tasty—not very tasty or amazing. In other words, the emphatic reading is *only* available when there are no stronger alternatives to be ruled out. Note that placing heavy prosodic stress on a non-extreme adjective can allow an emphatic effect to arise with *just* (e.g., *That basketball player is just TALL!*). Such stress seems to convey that the speaker is using the highest relevant threshold for the adjective, in effect converting it into an extreme adjective.

*Pink bathrooms are the best*, on this construal, denotes the set of worlds in which pink bathrooms are better than bathrooms of every other color in the widest possible domain of colors (including chartreuse). In other words, a conventional constraint on *just* that the CQ is the widest answerable construal of the  $UQ_c$  leads to the construction of the finest-grained partition of the common ground, distinguishing alternatives determined by the consideration of the widest domain of colors.

A reviewer wonders if our treatment is ad-hoc and tied to specific domains – such as the domain of colors. We do not think that it is; the example above is a specific instance of the following reasoning: the use of the superlative form of any adjective *A* involves the consideration of a comparison class relative to which some entity *x* stands out as having the greatest degree of the attribute associated with *A*. This means that on a pair-wise comparison with every entity *y* in such a comparison class, *x* has greater degree of *A*-ness than *y*. Now it is possible that in making superlative assertions, some members *z* of the comparison class are not considered by the speaker in this pairwise comparison. This would mean that the proposition expressed by the superlative claim fails to distinguish between worlds in which *z* has greater *A*-ness than *x* or less *A*-ness than *x* or the same amount of *A*-ness as *x*. The use of *just* ensures that such *z*s are not excluded from the relevant comparison class on which the question is based. The widest construal of an underspecified question “What entity is the *A*-est in a comparison class?” is one in which no entity fails to be compared with every other entity in the comparison class. The resulting construal will naturally contain alternatives that are distinguished from one another in a more fine-grained way than any construal in which some entities are ignored.

#### 4.9 Capturing distinctions in truth-conditional effects across *just*'s flavors

Our analysis derives the different effects or “flavors” of *just* relying on a single notion: the optimal or widest answerable construal of an underspecified question. The widest construal is the finest-grained partition of the common ground, and a speaker who signals that they are construing the underspecified question in this way signals that they are accessing the widest domain of alternatives distinguishable at the context. This is what the “domain-widening” function of *just* amounts to. The prejacent is understood to be a member of this finest-grained partition and receives an exhaustive interpretation by non-cancellable or mandatory implicature. Thus, although the conventional meaning of *just* that we propose does not explicitly rule out stronger alternatives by asserting that they are false (as in standard accounts of exclusives such as Coppock and Beaver (2014)), it brings about exhaustification as a robust, non-cancellable implicature. This strengthened interpretation of the prejacent may sometimes be targeted by denial moves in discourse (63a) and clausal negation (63b).

(63) a. A: Mary went to *just* Spain and Portugal (for vacation this year).

B: No/that's not true! She also went to Italy.

b. Mary didn't go to *just* Spain and Portugal.

↪ Mary went to countries besides Spain and Portugal

(exhaustive interpretation of prejacent cancelled)

One puzzle that emerges from our treatment, as a reviewer observes, is the following: Why should there be a difference in how easily different effects of *just*

may be targetable by clausal negation or denial moves? Consider for example the emphatic (64a) and minimal sufficiency (64b) uses.

- (64) a. A: This soup is *just* amazing!  
 B: #That's not true! It is pretty mediocre.
- b. A: *Just* a cat will make Patrick happy.  
 B: #No, that's not true! (Even) a goldfish will make him happy.  
 C: Yes! Even a goldfish will make him happy.

In these uses, denial of the *just*-containing claim using *that's not true* seems infelicitous. A full(er) treatment of the interaction of *just* with clausal negation and different kinds of denial (or agreement) responses must be left for thorough future investigation but we can briefly consider here why the effects brought about by *just* in different uses are not uniformly targetable by clausal negation or denial moves.

One of the effects of *just* on our analysis is that it gives rise to upper-bounding mandatory implicatures in a subset of uses – complement exclusion, rank order, unexplanatory and unelaboratory uses, proximity-denoting uses (*[just]<sub>F</sub> taller than*), and some equality-denoting uses (*[just]<sub>F</sub> full*). There is a common reasoning in all these: the use of *just* signals as not-at-issue content that the CQ is the widest answerable construal of the UQ<sub>C</sub>; it is inferred that the prejacent, as a member of this set of alternatives, is intended to offer an exhaustive answer; why else would the speaker explicitly convey that the CQ is the widest answerable construal of UQ<sub>C</sub>?<sup>40</sup> This particular upper-bounding inference triggered by *just* is predicted to be targetable by clausal negation (in suitable contexts) and discourse denials.

The uses where this is less straightforward, as in (64a) and (64b), do not generate any upper-bounding inferences. Moreover, emphatic uses with extreme predicates, as discussed in §4.8, involve a subjective view on the maximum/endpoint of a contextually relevant set of degrees. This means that speakers can faultlessly disagree about what they take to be the maximum relevant value on a scale at a context – beyond which the zone of indifference lies for them. Note that a sentence containing a predicate of personal taste such as *this soup is tasty* uttered by a speaker who is acquainted with the soup's taste can also not be denied with *No, that's not true*. But an interlocutor may faultlessly disagree with the subjective claim using expressions like *No, it isn't*, or *Not really...* or *I don't think so* in order to convey their personal perspective on the matter. Notice that such responses expressing faultless disagreement are also fully acceptable with the emphatic use of *just*.<sup>41</sup>

<sup>40</sup> In the unexplanatory and unelaboratory cases, the extreme informative weakness of the prejacent leads to the inference that the information provided exhausts what the speaker considers accessible information or perceived need to satisfy discourse goals (that's all that needs to be said). This enriched meaning is targetable whenever the hearer believes it to be false that the speaker is ignorant or sufficiently cooperative, or if what is falsely implicated is the lack of a knowable explanation.

<sup>41</sup> Embedding a *just*-containing clause with emphatic reading under negation (*#This soup is not just amazing!*) is awkward because the use of *just* indicates that the speaker is invoking the subjectively highest conceivable **max**(C) for the extreme predicate *amazing*. Explicitly identifying the (subjectively) highest scalar endpoint as a lower bound for an extreme predicate and denying that the subject referent has the specified attribute to

- (65) A: This essay is just perfect!  
 B: Not really... did you notice the flaws in the reasoning?  
 B': No, it isn't! I found it too verbose.  
 B'': I don't think so. I hate how pretentious it sounds.

With minimal sufficiency uses, note again that there is no upper-bounding. The use of *just* in A's claim in (64b) gives rise to the inference that a cat is minimally sufficient – i.e. *nothing less* than this is sufficient and *nothing more* than this is necessary. It allows that any larger/more expensive pet is also sufficient for Patrick's happiness. We think that in many minimal sufficiency uses, the widest answerable construal is modulated by relevance. That is, the *just*-using speaker offers an answer to the widest **relevant** construal of the question (which may be less wide than the absolute widest construal.) So A, making their contribution in (64b), claims that a cat is the smallest relevant pet-type that is sufficient to ensure Patrick's happiness, possibly ignoring some even smaller pet-types as being irrelevant to their claim. B's denial cannot possibly target the prejacent (if a goldfish is sufficient according to B, it follows that a cat is sufficient). It could target the lower-bounding inference – nothing less than a cat is sufficient – which we take to be a non-cancellable implicature. But if A construed the question in terms of the most relevant smallest sufficient  $p$  to ensure  $q$  (thereby possibly ignoring some irrelevant smaller  $p'$  that is also sufficient), then it is not cooperative for B to deny this lower-bound unless establishing an even more finer-grained lower bound is necessary for discourse goals. C's response in (64b) accepts A's construal of the question and suggests that an even wider construal (finer-grained partition) might be relevant.<sup>42</sup> Needless to say, working out in detail the diverse ways in which relevance to discourse goals determines the “optimal” or “widest answerable construal” of an underspecified question that is referenced by *just*, the specific upper-bounding or lower-bounding inferences generated by this construal, and the contexts in which these inferences may be targeted by clausal negation or response particles and/or discourse denials, is a much larger project.

## 5 Comparison with other approaches

Our analysis of *just* has elements in common with several existing analyses that also attempt to reconcile the seemingly disparate uses of *just*, while differing from these both conceptually and in implementation. The approaches that are most relevant are those found in Beltrama (2021) Warstadt (2020) and Windhearn (2021) Because the analytical machinery in each of these is distinct and quite involved, we restrict ourselves to a comparison of the intuitions that guide the different analytic choices.

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a higher degree than this endpoint without further specifying the degree to which the referent *does* have the specified attribute according to them would violate both Quantity and Manner – it is formally complex without being sufficiently informative. The speaker could have made the same claim without using **just**.

<sup>42</sup> With clausal negation, as far as we can tell, the lower-bounding inference is deniable. A negated declarative like *Not just a cat will make Patrick happy* seems to be naturally followed by: *A goldfish will also make him happy* and not *A horse will also make him happy*.. So what is denied there is not the prejacent but the lower bounding inference coming from *just*.

### 5.1 Beltrama (2021)

Beltrama (2021) is an attempt to unify the emphatic, or intensifying use of *just* (and *simply*) with extreme predicates and its canonical exclusive use. The analysis relies on two modifications to the basic contribution of an exclusive operator. First, the alternatives that emphatic *just* excludes are granularity-based alternatives, which are understood to be alternative descriptions that provide a finer-grained representation of the facts. The core idea is that the granularity-based alternatives of a prejacent containing an extreme predicate like *perfect* or *amazing* can never asymmetrically entail the prejacent, given that these predicates are logically associated with the scalar maximum. So, for a sentence like *This essay is perfect*, a more specific description such as *this essay is absolutely/totally perfect*, does not offer a logically more fine-grained representation of the facts. Second, all alternatives other than the prejacent are rejected for being not assertion-worthy, rather than false. The intuition is that a speaker using *just* with an extreme predicate signals that all more specific/granular descriptions that are alternatives to the prejacent are not worthy of being pursued in the discourse (because they cannot contribute any greater refinement than the prejacent.). This, in turn, licenses the inference that the extreme predicate in a *just*-containing sentence may not be interpreted imprecisely in the context. Beltrama's approach resonates with ours in two respects: First, the alternatives that *just* quantifies over distinguish between distinct levels of granularity, going beyond the standard Roothian ones. Second, constraints on licit discourse contributions are extended; alternatives to the prejacent are rejected, not because they are false, but rather because they are not worthy of being asserted. But notably, Beltrama continues to assume that the QUD that constrains the generation of alternatives is shared between the interlocutors with no potential for differences in its construal – a central feature of our analysis. Beltrama's account does not cover the ground that we do, and so the question of how minimal-sufficiency uses, unexplanatory, unelaboratory, and mirative uses, as well as the approximating and precisifying uses are to be reconciled with the canonical exclusive and emphatic use, remains unaddressed.

### 5.2 Windhearn (2021)

Windhearn (2021), building on her earlier work, (e.g. Wiegand (2018)), provides a unified analysis that has greater empirical coverage than Beltrama's. She does so by constructing a radically underspecified common semantic core for all exclusives, that is taken to be realized by *just*, but is constrained in specific ways for more restricted particles such as *only*. The crucial innovation is that *just* is allowed to quantify over non-Roothian alternatives, i.e. alternatives that are triggered by non-overt elements in the semantic interpretation of the prejacent. These include eventuality parameters such as spatio-temporal location or cause, and granularity parameters that determine the precision at which context-sensitive expressions might be interpreted. Windhearn requires these parameters to be instantiated covertly in the morphosyntactic representation of the prejacent. For example, a covert CAUSE<sub>0</sub> morpheme is posited in the prejacent in unexplanatory uses, that is understood to represent a minimal necessary cause for the eventuality described by the prejacent. Such covert instantiations of interpretive parameters serve as the basis of the

alternative set, and allow for denial of all stronger alternatives that vary with respect to the values for these parameters.

The generation of alternatives for Windhearn is Roothian in spirit – it always involves the replacement of an overtly focused or a covert element in the prejacent with semantic contents of the same type. By appealing to covert morphosyntactic elements, Windhearn is able to decouple the construction of alternatives from the locus of prosodic focus, but alternatives are still determined by the assumed morphosyntactic properties of the prejacent. For us, the alternatives are determined by the optimal (widest answerable) construal of an underspecified question (explicit or implicit). Intuitively, Windhearn is concerned with the question *What are the different, possibly covert, morphosyntactic elements that determine how alternatives to a prejacent might vary?*. We are asking the question *What are the different contextual elements that determine how construals of a question might vary?*.

The second way in which Windhearn's approach differs from ours (and Beltrama's) is that stronger alternatives than the prejacent are ruled out because of their falsity. Our approach, which rules out alternative question construals rather than alternative answers directly, allows for wider, more inquisitive questions to be ruled out as unanswerable due to speaker ignorance or irrelevance to discourse goals. This offers a more intuitive account of the unexplanatory and unelaboratory uses.

### 5.3 Warstadt (2020)

Warstadt (2020) offers an analysis couched in Onea (2016)'s theory of Potential Questions. His proposal is that *just* is sensitive to the future evolution of the discourse rather than the commonly shared question under discussion. Specifically, the function of *just* is to rule out a salient potential question by ruling out all alternatives to this potential question as unassertable. Assertability is determined by speaker's belief in the truth of a proposition, their belief in its relevance to the discourse goals of other participants, and their willingness to be publicly committed to believing it.

Warstadt applies this idea to account for the unexplanatory, unelaboratory, uncontrastive (= emphatic), and unconjunctive (=canonical exclusive) uses of *just*. The alternative sets that *just* quantifies over come from the privileged potential question (PQ) that is licensed by the prejacent. The type of PQ that is licensed determines the flavor of *just*. The PQs that Warstadt argues to be licensed for some examples of *just*'s uses are given below. In each case, the bare prejacent is understood to license the PQ while the use of *just* preemptively closes it from being addressed.

(66) a. The lights in this place (just) turn off and on.

**Explanatory PQ:** Why do the lights in this place turn off and on?

Exclusion of alternatives to an explanation question is responsible for the unexplanatory flavor.

b. The pumpkin bisque is (just) delicious!

**Contrastive PQ:** But what (reduces its deliciousness)?

Exclusion of alternatives to a contrast question is responsible for the uncontrastive/emphatic flavor.

c. Sue is (just) a teacher.

**Elaboratory PQ:** What kind of a teacher is Sue?



Exclusion of alternatives to an elaboration question is responsible for the unelaboratory flavor.

d. Betsy (just) eats soup.

**Conjunctive PQ:** In addition to soup, what does Betsy eat?

Exclusion of alternatives to a conjunction question is responsible for the canonical exclusive flavor.

To the extent that the inferences associated with the different uses of *just* should be systematically connected to what kinds of potential questions are excluded by its use in specific contexts, it is worth thinking about this relationship. While the explanatory and elaboratory potential questions seem to be reasonable, it is unclear why uncontrastive and unconjunctive questions are licensed where they are.<sup>43</sup>

Warstadt's intuition that *just* functions to close off further inquiry in a particular direction is similar to the idea in Velleman et al. (2013) that exclusives and clefts are inquiry-terminating constructions. We also share Warstadt and Velleman et al.'s intuition but rather than encoding this function lexically in the meaning of *just*, our analysis accomplishes this effect by letting *just* signal that the optimal (widest answerable) construal of the underspecified question has been taken up as the CQ. This, in turn, entails that the speaker believes that no further refinement of the question is possible at the context. With unexplanatory and unelaboratory uses, because the answers provided are much weaker than expected, the use of *just* leaves the hearer with a sense that further questioning will be fruitless. This is the effect that Warstadt wants to capture by ruling out explanatory and elaboratory potential questions. But there does not seem to be such an effect in the emphatic (uncontrastive) and canonical exclusive (unconjunctive) cases. Here, the widest construal of the underspecified question is answerable and therefore optimal. This construal is taken up and answered; the inquiry is closed only after due diligence.

## 6 Concluding remarks

Our main argument in this paper is that *just* can be given a unified analysis if it is understood to signal that the widest answerable construal of an underspecified question is being addressed by the prejacent. The intuition that guides this analysis is that *just* seems to often invoke the most fine-grained set of alternative answers (the widest domain of alternatives) relevant at a given context. By modeling this "widest relevant domain" in terms of the relative inquisitiveness of construals of the same underspecified question, we are able to account for why the functions associated with exclusivity, precisification, intensification, and mirativity might cluster together in a single lexical expression like *just*. Unexplanatory and unelaboratory effects are accounted for by conditioning what counts as the widest construal on answerability.

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<sup>43</sup> We agree with Windhearn (2021, p. 90) that Warstadt's claim that conjunction questions are potential questions licensed by the prejacent (as in (66d)) seems to miss the point that the alternatives in this so-called potential question are identical to the focus alternatives associated with the prejacent, and therefore presumably contained in the QUD that the prejacent addresses. It is also unclear to us why an evaluative claim like (66b), without *just* should give rise to a contrastive potential question.

This allows for a speaker to present extremely weak construals of the underspecified question as the widest at a context, if no objectively wider construal can be truthfully answered by the speaker or is taken to be relevant to discourse goals.

If this treatment of *just* is correct, then we expect to find, across languages, lexicalized discourse-managing strategies that shape the construal of the explicit and implicit questions that the prejacent might address. But before we move to the broader typological space, consider the English expression *simply*, which is also analyzed as an “exclusive” by Coppock and Beaver (2014). Nonetheless, it has been observed to also have unexplanatory uses (Wiegand 2018), unelaboratory uses (Warstadt 2020), emphatic uses (Beltrama 2021), and minimal sufficiency uses (Panizza and Sudo 2020) – thus patterning remarkably similarly to *just*, in contrast to *only*.<sup>44</sup> Given its profile, we are inclined to hypothesize that *simply*, like *just*, is also sensitive to how wide/refined the set of alternative answers in the speaker’s construal of an underspecified question is. This parallel also means that the full contribution of *simply*, like *just*, cannot be understood by analyzing it as an *only*-like exclusive either. Rather than being narrowly subsumed under the “exclusive” category, both *simply* and *just* may be better understood as expressions that facilitate construal of alternatives at different levels of fine-grainedness. Once we start examining and trying to account for expressions like *just* and *simply* in terms of all their uses, we may find that we need to alter our views of the perceived affinities based on a smaller set of empirical facts that led to them being classed as “exclusives” in prior literature.

Moving beyond English, we find expressions crosslinguistically that pattern similarly. The Marathi discourse clitic =*ts*, investigated in some detail in Deo (2023) is shown to have an interpretive profile quite similar to *just*. Windhearn (2021, p. 270) also notes that Japanese *bakari*, German *gerade*, and Dutch *net* also have both exclusive and precisifying effects. Whether the contribution of these expressions might be better understood in terms of their effect on the contextual construal of the relevant questions is a task for future research.

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<sup>44</sup> A close analysis of *simply* would require a separate paper, but we note here that *simply* can never be focused unlike *just* and also does not have the precisifying uses discussed in §4.7.1 and §4.7.2.

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